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ABSTRACT

Presented in the annual (1974-75) evaluation of Project Talented and Gifted are results of an appraisal of over 50 student participants (10- to 12-years-old) and the project staff and resource personnel. The project is described as a 3-month institute to provide experiences in areas such as learning to use creative thinking and problem-solving strategies in language arts, science and mathematics, and music. Results and recommendations from the first evaluation are outlined and instruments used for the second evaluation are described in three sections: the experiment, student perceptions, and other sources. Reported are findings which included that Ss showed significant improvement in verbal originality and figural flexibility; that Ss improved in the areas of self-strength and individually; and compared to Ss' self-perceptions in 1974, 1975 Ss' self-perceptions significantly improved in environmental sensitivity, initiative, self-strength, individuality, and intellectuality. Recommendations for the project's third year are noted which include the continued encouragement of effective use of the library. (SB)

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PROJECT TALENTED AND GIFTED SECOND EVALUATION REPORT

(ESEA TITLE III REGION II)

Prepared by Joe Khatema, Ph.D.

For the West Virginia State Department of Education

Charleston, West Virginia

1975

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INTRODUCTION

This is the second evaluation report of Project Talented and Gifted covering the period 1st July, 1974 to 30th June, 1975. It consists of (1) an appraisal of the creative and intellectual development, and academic achievement of talented and gifted student participants of the Project relative to the experimental format outlined in the Addendum to the initial proposal, and (2) an appraisal of the function and operation of the Project Staff relevant to the purpose of the Project

It was decided that the appraisal would limit itself to the first intake of 10 to 12 year old's who have been Project participants since September 1, 1973. The selection of 8 to 10 year olds and 14 to 15 yearolds as the second intake for participation in the Project was completed in January, 1975; since they had had relatively limited experiences over a period of about three months (viz., February to April, 1975) it was decided to delay appraising their development and progress until the third evaluation of the Project in 1976.

Measures that were used to appraise the creative and intellectual development, and academic achievement of these participants were the Torrance Tests of Creative Thinking (Figural Forms A and B), Thinking Creatively with Sounds and Words (Forms 1A and 1B), Standard Progressive Matrices, Short Form of the California Test of Mental Maturity (Level 2H), and the Stanford Achievement Test (Intermediate Level II: Forms X and Y, Something About Myself was also used both as a measure of participant's perception of their creative development as well as a diagnostic tool for specific refinements of the experimental program. Other information for the evaluation was obtained from Coordinators' and Project Director's reports. Counselling profiles showing individual development and growth in the Program will be ready for use for the third evaluation report in 1976.

Conclusions and suggested refinements to the Program for the third year of the Project's operation follow.

EVALUATION OF THE EXPERIMENT

The first evaluation report of the Project outlined the circumstances, need and directions leading to the initiation of Project Talented and Gifted in Region II of West Virginia and the objectives of the first appraisal (Pp. 3-6). This appraisal involved the measurement of the "effectiveness of the program for talented and gifted students as it relates to (1) the development of their creative thinking abilities, (2) parents' perceptions of their children's creative orientations and student perceptions of themselves, and (3) observations of the progress of the Project by its Director, Co-ordinators and Resource Personnel with an example of Student appraisal of one component of the program in terms of recent Summer workshop experiences" (P. 6).

The evidence obtained showed that talented and gifted students of the Project who were exposed to an experimental program rooted to creativity for a period of just over three months demonstrated significant improvement in verbal originality as measured by Onomatopoeia and Images over those who had not been exposed to the program. The program did not appear to have effected improvement in figural fluency, flexibility, originality and elaboration as measured by the Torrance Figural Tests in favor of the experimentals; however improvement in figural originality was found to be a function of age and favored controls.

Evidence of creative perceptions as measured by Something About Myself and derived from parent and experimental student responses showed that students of the Project were weakest on Initiative, strongest on Environmental Sensitivity and Intellectuality, and moderately strong on Self-Strength, Individuality and Artistry.

These findings led to the following recommendations (Pp. 63-66):
(a) Special attention and emphasis need to be given to the development of four creative thinking abilities, namely, fluency, flexibility,

originality and elaboration.

(b) Activities that encourage the development of these creative thinking abilities including the use of analogy, restructuring and synthesis need to be planned for these students and these should be rooted to the affective domain of creative thinking as described by Frank E. Williams.

(c) More sustained efforts should be made and more substantial blocks of time planned for the exposure of experimental students relative to the first two recommendations, facilitated by more innovative scheduling of school time for the students with the help of the principals and other education authorities.

(d) Cooperative efforts as in group work in the context of mild competition among groups of experimental students to improve the motivational level and create productive striving efforts need to be planned.

(e) A system of rewards needs to be established for more effective control of experimentals: a fine transition from extrinsic reinforcers to intrinsic reinforcers may have to be made with the development of the program.

(f) Experiences levelled at developing creative attitudes to learning that will establish creative sets to mental functioning and performance need to be arranged for these students

(g) Experiences for more effective use of the library levelled at developing skilful use of the facilities and resources it provides should be arranged: this could find connections with the projects that students decide to undertake when students become more sensitive to their need to use the library. They should be taught the proper use of index cards for recording data they find with the purpose of developing proper storage for efficient retrieval of information as and when required

Maintenance of library activities need to be kept at an optimal level with encouragement given to students to apply the creative problem-solving skills they have learned. Some unobtrusive system of checks may be devised to facilitate appropriate use of the library.

(h) Students need to be made more aware of the different sources of knowledge, namely, through experience, by authority, through deductive and inductive reasoning, and their relative strengths and weaknesses. Further, they need to be given more experiences in the scientific method and its operational steps that should take them from the initial problem sensing stage to the final solution stage. The different research strategies offer different approaches to the study of various problems: students may learn about them so that they may be better able to plan the use of the most appropriate technique to find tentative answers to their questions.

(i) Greater emphasis may be given to students need to complete their projects with something to show for their efforts and this in turn will provide yet other occasions for positive reinforcements.

(j) Visits to various places of interest geared to learning are of great relevance and can be made more effective if tied in with student project needs.

(k) Provision of leadership experiences should receive considerable attention in developing the Program Model for the second year of the Project. It should be planned that students be encouraged to exercise initiatory activities to an even greater extent than in the first year with opportunities for them to assume leadership roles. This ought to include attempts to make breakthroughs relative to their strengths either as individuals or in groups, by way of initiating situations

leading to composition, invention, reorganization, planning, and working together possibly on larger projects like a dramatic or musical production, or newspaper production with opportunities for the formation of many sub-groups and leadership positions related to the aims of the total project.

(l) The Coordinators' suggestions on the creation of Mini Courses in special areas of interest are highly relevant and should find inclusion in the Program Model for the second year of operation, the structure and content of which can be determined at the second Summer Institute.

(m) It would be of great value to the evaluation component of the Project to have the progress of the initial 90 experimentals more carefully recorded and reported in time for the next evaluation. The form this will take may be determined by the Coordinators in consultation with the Project Consultant.

(n) Appraisal of two larger experiences in the Program by experiential participants will also be helpful to the planning of further experiences for them in the third year of the Project, and the form of this may also be determined by the Coordinators in consultation with the Project Consultant.

(o) The need for an additional Coordinator, more Resource Personnel and Secretarial help with the expansion of the Project as foreseen and observed by the Coordinators and Director is endorsed.

(p) Resource Personnel need to be appropriately oriented to the aims and goals of the Project and its Program for congruence in their interactions with the students.

(q) Means of using participant students' school teacher to maintain the strengths students have gained through the Program, and assist in the extension of these strengths in their school activities should be explored.

(r) The possibility of giving awards for outstanding service to the advancement of the Project's aims and goals by Parents, Resource People, Educators, Administrators and the like should also be explored. Certificates of Merit appropriately presented at one of the Project's public functions is one effective way of providing incentives to those who are important in the process of facilitating the development of these gifted students. Other ways should also be considered.

The purpose of the second evaluation report will be (1) to examine the effects of the implementation of these recommendations relative to the refinement of the experimental program of the Project as measured by the Torrance Tests of Creative Thinking, and Thinking Creatively with Sounds and Words; (2) to examine the effects of the program on the enhancement of nonverbal and verbal intelligence as measured by the Standard Progressive Matrices, and California Test of Mental Maturity (Short Form); and (3) to examine the effects of the program on academic achievement as measured by the Stanford Achievement Test and Musical Aptitude Profile

Evaluation of the effectiveness of the Project will also be done by an examination of the development of experimentals as described by their creative self perceptions measured by Something About Myself, and the reports submitted by the Project Director and the Coordinators which will include teacher evaluation of students and student evaluation of the Program.

RELATED LITERATURE

Information regarding the need to develop creative thinking abilities of talented and gifted children, some major strategies that have been successfully used for the purpose, and the role of the present project in this respect have been outlined in the first evaluation report of the Project (Pp. 6,7 and 37).

To recapitulate, it was pointed out that developmental acceleration of creative mental functioning through planned environmental enrichment has been claimed and generally substantiated by the research reported in Compendiums I and II on the Creative Imagination (1958, 1960), the works of Osborn (1963), Youtz (1962), Parnes (1962, 1966, 1967ab), Parnes and Noller (1974), Torrance (1965, 1972), and others. On the whole, reported improvements in creative performance resulting from exposure to various training procedures and as measured by tests of creative thinking reinforces the view that much can be done to help the individual to realize his creative potential.

Torrance (1972) has outlined a variety of techniques that have been used for this purpose which include training programs emphasizing the Osborn-Parnes Creative Problem Solving procedures; training in general semantics, creative research, and the like; complex programs involving packages of materials such as the Purdue Creativity Program; the creative arts as vehicles for teaching and practicing creative thinking; media and reading programs designed to teach and give practice in creative thinking; curricular and administrative arrangements designed to create favorable conditions for learning and practicing creative thinking; teacher-classroom variables, indirect and direct control, classroom climate, and the like; motivation, reward, competition, and the like; and testing conditions designed to facilitate a higher level of creative functioning or more valid and reliable test performance.

This study also shows that only five studies which explored the effects of exposing gifted students to creative thinking experiences were done: one explored the effects of providing gifted students with experiences in historical, descriptive and experimental research (Torrance & Myers, 1962), a second explored the effects of a reading program teaching children to think creatively (Casper, 1964), a third and fourth investigated the effects of exposing children to learn curriculum through self-directed or independent study (Bennett, Blanning, Boissiere, Chang & Collins, 1971; Gold, 1965). Four of these studies used gifted students between the fourth and sixth grades as subjects while the fifth had high school students as subjects.

Careful screening of the considerably large body of literature on the talented and gifted and its educational correlates in Dissertation Abstracts, Psychological Abstracts, and the Council for Exceptional Children/The Association for the Gifted ERIC collection of abstracts for the period 1960 to 1974 has shown that little has been done by way of measuring adequately the effects of programs stressing creative mental functioning and behavior on gifted students in a sustained way. To complicate matters many of the findings reported spring from evaluations that have for the most part little control over prior events relative to good design and program development which in turn caution subsequent evaluations that may consider using these findings as valid criteria. A good discussion of this problem can be found in Chapter V of a recent publication entitled Principles, Objectives, and Curricula for Programs in the Education of Mentally Gifted Minors Kindergarten through Grade Twelve, prepared by the Bureau of Publication of the California State Department of Education (1971).

Of particular interest to the Project Evaluation is a doctoral study on "The Academic Effects of Assigning Gifted Students to Special Centers in the Fairfax County Schools" (Joseph, 1969). The author indicated that the experimental method of equivalent groups was used as the design of the study such that 32 subjects were matched according to sex, chronological age, intelligence quotient, and scholastic achievement. Experimental subjects were 16 seventh graders attending special classes for gifted elementary school pupils in Fairfax County, Virginia, during 1967 to 1968, whereas 16 matched controls attended regular school classes. The researcher hypothesized that exposure of experimentals to the program at these special centers as compared to controls would make a difference in academic achievement, grades in school subjects, personality traits, creativity, and participation in extracurricular activities and school offices held by pupils. The study reported that experimentals excelled controls in paragraph meaning, language, arithmetic concepts and arithmetic applications as measured by Form W of the Stanford Achievement Test in a first testing done in the Fall of 1968 but retained superiority only in arithmetic computation and arithmetic concepts in a second testing that followed in Spring, 1969. No significant differences were found for school grades, personality traits, creativity, and participation in extracurricular activities and school offices held.

It should be noted however, that although some significant differences were found in four and then two of the achievement areas on the Stanford Achievement Test, these findings have to be regarded with caution since the experimenter really had little control over the selection of his subjects for the program, that matching was done subsequent to the exposure of gifted experimentals to the program, and that the design used was really Ex Post Facto rather than Experimental, and hence faught with

the dangers of competing alternative hypotheses that might have accounted for the observed change rather than the treatment.

Three other doctoral studies explored the relationships among creativity, intelligence and achievement and their findings are also of interest to this report. All three were correlational studies in which the California Test of Mental Maturity was used to measure intelligence quotient; two studies used the earlier form of the Torrance measures of creativity entitled the Minnesota Tests of Creative Thinking, and one study used the Getzels-Jackson Creativity Battery to measure creativity; and several different achievement measures were used, namely the Iowa Test of Basic Skills, California Achievement test, California Language and Reading Tests, and the Gates Reading Test. Cicirelli (1964) found that correlations between (especially non verbal) creativity and achievement were small and generally not significant; and suggested that creativity appeared limited as a predictor of academic achievement; that where the effect of creativity on achievement was significant, intelligence quotient and creativity generally were additive and linear in their effect on academic achievement. However, both de Boer (1964) and Van Pelt (1965) found that intelligence quotient and creativity were significantly correlated with achievement.

The standard form of the Raven's Progressive Matrices has not been used to identify gifted children for special programs in the main. The only studies that used this measure investigated the relations of the Progressive Matrices to Achievement and did not find significant correlation indices (Cantwell, 1966; Illey & Macarthur, 1962) and to verbal intelligence as measured by the California Test of Mental Maturity finding high and significant relations with it (Nelson & Edelstein, 1963). The Raven's Progressive Matrices was used in only one study to identify intellectually

gifted American and English 13 year olds for the purpose of comparing their achievement level in mathematics but found no significant difference (Torrance & Johnson, 1966). It should be noted that none of these studies have the strict controls of good experimental design that will allow for more general application of the findings.

The purpose of this report will be to measure and evaluate the outcomes of exposing talented and gifted children to a program that is firmly rooted to some of the best principles of creative thinking and performance in the context of a good experimental design. Specifically, it will concern itself with the measurement and evaluation of the effects of the Program in terms of the development of figural fluency, flexibility, originality and elaboration, and verbal originality; verbal and nonverbal intellectual growth; achievement in the areas of language arts-social studies, mathematics-science; and musical aptitude.

PROCEDURES

The methodology of the study was described in the first evaluation report but is also being presented in this second evaluation report. To it will be included details relevant to this report in terms of additional information on instrumentation and statistical analyses.

1. Design

A modified version of the two groups randomized pretest-posttest design was used (Campbell & Stanley, 1966) such that there was an experimental and a control group each sub-divided into three age categories. Subjects were selected at random for the two treatment groups with the group that was to receive the experimental treatment or Program selected at random. By randomizing the treatment it was expected that reactive effects due to experimental arrangements would be controlled. In addition, to control for the Hawthorne effect to some extent, the control group was provided with limited activities peripheral to the Program; besides, testing and retesting members of the control group together with those of the experimental group was expected to contribute further to this control. The effects of the Program on the development of verbal and non verbal intelligence and creative thinking abilities, and achievement were measured.

2. Subjects

Principals, teachers and school psychologists in particular were invited to make referrals of students between the ages of 10 and 12 years attending elementary or junior high schools in Region II of West Virginia whom they thought were talented and gifted according to the following criteria; (a) IQ level of 130 and above as measured by the Stanford-Binet, WISC, or any other established group test of intelligence such as the California Test of Mental Maturity, Otis Quick Scoring Test, or the Cattell Culture Fair Test; (b) high achievement levels in the areas of language arts, mathematics, science, and music as measured by a standardized test or teacher

observation; and (c) high interest and motivational level.

Students were referred to the Project for screening, and on the basis of their performance on intelligence, creativity and achievement measures, 180 of these students were selected as Project participants. The raw scores they obtained on (a) the Short Form of the California Test of Mental Maturity, (b) the Raven's Progressive Matrices, (c) the Torrance Test of Creative Thinking, (d) Thinking Creatively with Sounds and Words, and (e) the Stanford Achievement Test, were converted to stanines, and average stanine was determined as an index of their general level of giftedness. These students were grouped in rank order in their subject area of preference and according to age preliminary to their selection for the two treatment groups. It must be noted that two sub-tests of the Music Aptitude Profile were administered only to students who had opted for music as clues that would assist in the differentiation of these students, but whose scores were not included with those of the other measures to determine average stanines. The average stanine acquired by each referral was used for the selection of the top 180 students for the Project. A table of random numbers was then used to select 90 students for each of the two groups such that there were 30 of each level with 10 students per subject interest area represented in each age group. The treatment groups were then determined as experimental and control at random by the flip of a coin.

It must be noted that the number of subjects who attended the posttest sessions decreased to 27 and 29 for the 10 and 12 year olds of the experimental group, and 23, 23, 19 for the 10, 11 and 12 year olds of the control group respectively: in all experimental mortality numbered four subjects for the experimental group and 25 subjects for the control group relative to the first evaluation.

The number of subjects who took the second posttests in 1975 decreased in number generally to 23, 22 and 21 for the 10, 11 and 12 year old experimentals (N=66), and 19, 24 and 14 for the 10, 11 and 12 year old controls (N=57) with some small variation in the groups due to either absence from the posttesting sessions or incomplete test data by irregular attendance of the test sessions. The loss of 57 subjects here (E=24 and C=33) was related to attendance at the posttesting sessions rather than withdrawl from the Project altogether. Student participants now remaining in the Project number 71 experimentals and 58 controls.

3. Instruments

Several tests were used to measure the effects of the Program: the Torrance Tests of Creative Thinking Figural Forms A and B (Torrance, 1966, 1974) were used to measure four creative thinking abilities namely, figural fluency, flexibility, originality and elaboration; Thinking Creatively with Sounds and Words Forms 1A and 1B (Khatena & Torrance, 1973; Torrance, Khatena & Cunnington, 1973) were used to measure verbal originality; the Standard Form of the Progressive Matrices (Raven, 1960) was used to measure nonverbal intelligence; the Short Form of the California Test of Mental Maturity Level 2H (Sullivan, Clark & Tiegs, 1963) were used to measure verbal-nonverbal intelligence combined; the Stanford Achievement Test Intermediate Level II, Forms X and Y (Kelley, Madden, Gardner & Rudman, 1964) were used to measure achievement in language arts and social studies, mathematics and science; and the Musical Aptitude Profile (Gordon, 1965) was used to measure musical aptitude in the areas of Tonal Imagery (Melody and Harmony).

(a) Torrance Tests of Creative Thinking

In the norms-technical manual of the measure Torrance has defined creative thinking as the process of sensing gaps or disturbing missing elements; forming ideas or hypotheses concerning them; testing these

hypotheses; possibly modifying and retesting the hypotheses, and finally communicating the results (Torrance, 1974). His measures of creative thinking are based upon this rationale and in the figural form of the test find expression in terms of four creative thinking abilities namely, figural fluency, flexibility, originality and elaboration. Each form of the test (Figural Forms A and B) provides the subject with a battery of three tasks, with each task presenting stimuli designed to activate the manifestation of different facets of creative mental functioning.

The first activity entitled Picture Construction presents subjects with a shape made of colored paper either in the form of a teardrop or pear shape (Form A), or in the form of a jelly bean (Form B). Subjects are instructed to think of a picture that would include the shape as an integral part, and encouraged to produce a picture that no one else in the group would have thought of. In addition to originality of production subjects are encouraged to elaborate by adding ideas that would make the picture tell as interesting a story as possible. A title was to be given to the completed picture. A limit of 10 mimutes was set for this activity. Products were scored for originality and elaboration.

The Incomplete Figures Activity as the second task presents subjects with 10 incomplete figures. The task is based upon the assumption that an incomplete figure sets up in an individual tensions to complete it in the simplest and easiest way possible; it requires creative strength to control this tendency to effect closure for original responses to emerge. The instructions urge subjects to think of drawing uncommon pictures or objects that would tell as interesting and complete a story as possible to which could be added other ideas elaborating upon the first. Each picture was to have a title. This activity is scored

for fluency, flexibility, originality and elaboration. Once again a 10 minute period was set.

The Repeated Figures Activity is the third task and consists of 30 parallel lines (Form A) or 40 circles (Form B) as the stimuli. Here what is tested is the ability of the subject to make multiple associations to a single stimulus. Whereas the parallel lines task like the incomplete figures of the second activity creates a tendency in the respondent to give immediate structure and effect closure, the circles task requires the respondent to disrupt structure or destroy an already complete form to produce the new. In this activity subjects are assessed for fluency, flexibility, originality and elaboration. A further 10 minutes is set for this task. Subjects complete the three activities of either form of the test in 30 minutes.

Validity and reliability data including group comparison norms and other relevant information concerning this measure are given in the Norms-Technical Manual (Torrance, 1966, 1974). Scoring of the tests was done according to the published scoring guides and scores for fluency, flexibility, originality and elaboration were obtained.

This measure was administered to Project participants as follows: as pretest in 1973, Form A; as first post test in 1974, Form B; and as second post test in 1975, Form A.

(b) Thinking Creatively with Sounds and Words.

Two tests of verbal originality, Sounds and Images (Cunnington & Torrance, 1965) and Onomatopoeia and Images (Khatena, 1971a) combined in their present form as Thinking Creatively with Sounds and Words (Torrance, Khatena & Cunnington, 1973) provide either sound or word stimuli under free associative conditions, with originality of response determined by statistical infrequency and relevance. The logic of both tests hinges upon the operation of the creative imagination to

effect a break away from the perceptual set of audio or onomatopoeic verbal stimuli to bring about the production of original responses.

In Sounds and Images, three repetitions of a group of four recorded audio effects are presented interspersed with narrated instructions that in effect force the listener to reject commonplace associations for free-wheeling and imaginative ideas. The test relies upon the process of free association and uses sound stimuli which range from the simple to the complex and from the common to the unusual to evoke original responses. For Form 1 A the four sounds are thunder, audio-generator sweeps reverberating spring in an echo chamber, and abstract sounds in the grand piano, and for Form 1 B the four sounds are surf sound, electronically processed cymbal roll, sustaining pedal, and piano effects. The first reaction to the presentation of such stimuli often is the production of stereotyped or common responses. Considerable creative power is required to break away from the usual sequence of thought into an altogether different pattern in order to produce the original.

Onomatopoeia and Images presents auditory-visual stimuli in the form of onomatopoeic words. These words have semantic and sound elements which are tied to associative bonds of referential and inferential meanings established through usage. They act as sets when presented to the listener from which he must break away by using what Coleridge refers to as the more conscious and less elemental secondary imagination to produce new combinations of meaning. The sound component of these words subtly strikes the listener unaware, stirring the emotional base of intellect, providing a tendency toward the irrational response. It is the in the intellectual-emotive interaction that the mechanisms of the creative process function most effectively in producing the original.

Just as in Sounds and Images, the test is administered in Standard conditions by presenting all instructions on long playing records with scripts aimed at conciseness and precision. A narrator prepares the subjects for the tests by explaining its nature and purpose and calling for the use of the imagination to create the original. A list of five onomatopoeic word stimuli for the children's version is read four times to the subjects (Form 1A: crackle, buzz, boom, moan, and growl; Form 1B: ouch, groan, jingle, zoom and fizzy). After the first, second and third readings of the complete list the narrator encourages the subjects to use their imagination to produce more original verbal images than before.

While Sounds and Images presents stimuli in the form of sound sets and Onomatopoeia and Images presents stimuli in the form of onomatopoeic word sets, both have certain built-in conditions that assist the listener in allowing the imagination freedom to create original images. Both tests use progressive warm-up, make divergent thinking legitimate, provide freedom from the threat of evaluation, invite regression, and aid the breaking of inhibiting sound and word sets.

Details about the construction, reliability, validity and other relevant data may be found in the Norms-Technical Manual of these measures (Khatena & Torrance, 1973). Scoring of these tests was done according to the published scoring guides and scores for originality were obtained (Torrance, Khatena & Cunnington, 1973).

All these measures were administered by the three Coordinators following training and under direct supervision by the Project Evaluator as pretests and posttests during the periods of October-November, 1973, April, 1974, and March-April, 1975.

These measures were scored by a group of Scorers trained and supervised by the Evaluator, and all related clerical work was done with the help of

the four Coordinators and Secretaries of the Project. The same Scorers scored the measures in 1974 and 1975. Interscorer reliability as reported in the first evaluation ranged from r = .84 to r = .96 ($p<.01$) for Torrance measure and r = .93 to r = .98 ($p<.01$) for Thinking Creatively with S and Words.

(c) The Standard Form of the Progressive Matrices

The Progressive Matrices is a nonverbal intelligence measure of English origin whose rationale is rooted to Spearman's neogenetic principles of cognition namely, apprehension of experience, eduction of relations, and eduction of correlates, and designed by J. C. Raven to test a person's capacity to apprehend meaningless figures presented for his observation, see the relations between them conceive the nature of the figure completing each system of relations presented, and by so doing develop a systematic method of reasoning.

The Standard Progressive Matrices consists of five sets of 12 problems each, making a total of 60 problems with the first problem in each set as nearly as possible self-evident and with the problems becoming increasingly difficult. The earlier series involve accuracy of discrimination, while the later more difficult series involve analogies, permutation and alteration of pattern, and other logical relations.

All testees irrespective of age are given exactly the same series of problems in the same order, and asked to work all 60 problems at their own speed without interruption. The test may be individually or group administered requiring very simple oral instructions. For the purposes of the Project, the Standard Progressive Matrices was group administered first in 1973 and again in 1975.

Details concerning the construction, reliability, validity and other relevant data may be found in the Guide (Raven, 1960). Scoring is done according to the scoring key provided in the manual and a person's score is determined by counting the number of problems correctly solved.

An extensive bibliography on the measure and its uses was recently prepared by Court in 1972 and provides further up to date evidence concerning the instrument.

(d) The Short Form of the California Test of Mental Maturity

The California Test of Mental Maturity is a measure of intelligence intended to parallel the Stanford-Binet Intelligence Scale, and provides information about the functional capacities that are basic to learning, problem-solving and responding to new situations (Sullivan, Clark & Tiegs, 1963). The 1963 Revision of the Short Form of the California Test of Mental Maturity consists of seven sub-tests namely, Opposites (Test 1), Similarities (Test 2), Analogies (Test 3), Numerical Values (Test 4), Numerical Problems (Test 5), Verbal Comprehension (Test 6), and Delayed Recall (Test 7).

The items of each of these sub-tests which are both verbal and nonverbal and multiple choice in nature have been grouped according to four factors: Factor I -- Logical Reasoning (Tests 1, 2 and 3); Factor II -- Numerical Reasoning (Tests 4 and 5); Factor III -- Verbal Concepts (Test 6); Factor IV -- Memory (Test 7). The Short Form of the measure has eight articulated test levels that cover the grade and age range from preschool to adult levels.

Directions are read verbatim to the testee and time limits for each of the sub-tests are prescribed with total actual testing time varying from 39 to 43 minutes depending on the level used. The Short Form of the measure may be hand or machined scored and provides Mental Ages and Intelligence Quotients for verbal, nonverbal and the combined components of the test.

Details concerning the construction, reliability, validity, and other relevant data may be found in the Examiner's Manual and several other supplementary publications (Sullivan, Clark & Tiegs, 1963).

For the purposes of the Project, Level 2H was administered in 1973 as a pretest, and in 1975 as a posttest. The test responses were hand scored in the first administration and machine scored in the second administration according to the published scoring key.

(e) The Stanford Achievement Test

The Stanford Achievement Test was designed to measure knowledge, skills and understanding considered important and desirable outcomes of the major branches of the elementary curricular (Kelley, Madden, Gardner, Rudman, Merwin & Callis, 1965). The present edition of this measure (Elementary Levels -- Grades 1 to 9) is organized in five batteries (Primary Batteries I and II, Intermediate Batteries I and II, and the Advanced Battery) for use at various grade levels. Each test battery comes in four forms (viz., W, X, Y and Z) matched for content and difficulty with some slight overlapping or identity of content between adjacent batteries.

For the purposes of the Project the Intermediate Battery Level II -- Form X (primarily designed for use from the middle of Grade 5 to the end of Grade 6) was used as the pretest in 1973 for 10 to 12 year old gifted students, and the Advanced Battery Form (primarily designed for use from the beginning of Grade 7 to the end of Grade 9) and the Intermediate Battery Level II -- Form Y was used in 1975 as the posttest for 13 year olds, and 11 and 12 year old gifted students respectively. Administration of the sub-tests were staggered over several day sessions so as not to cause undue fatigue.

Nine sub-tests of the Intermediate Battery Level II measured the content areas of Word Meaning, Paragraph Meaning, Spelling, Language, Arithmetic Computation, Arithmetic Concepts, Arithmetic Applications, Social Studies and Science, with the Advanced Battery measuring the

same content areas except Word Meaning by eight sub-tests.

The tests are fundamentally power and not speed tests although all sub-tests are timed this is done more for ease of administration since time limits are calculated to give nearly all students sufficient time to attempt all questions which they are capable of answering correctly.

Responses in the test booklet were hand scored according to the published scoring key. Information on construction, reliability, validity and other related data may be found in the Administration Directions and Technical Report of the measure. Some incompleteness of certain aspects of reliability and validity data relative to the measure was indicated by Merenda (1965) and Payne (1974), but with the comment that the Stanford Achievement battery remains in the forefront of such batteries available to school personnel below the senior high school level and recommendation for its continued adoption and use (Merenda, 1965).

(g) Musical Aptitude Profile

The Musical Aptitude Profile (Gordon, 1965) is an objective measure of basic musical aptitude and does not concern itself with historical or technical facts about music. The basic factors measured by the test are Tonal Imagery (Melody and Harmony), Rhythm Imagery (Tempo and Meter), and Musical Sensitivity (Phrasing, Balance and Style).

The complete battery of seven tests, includes practice songs and directions, and are on recorded tape. The tests are made up of original short selections composed for violin and cello by the author and performed by professional artists. Subjects are asked to compare a selection with a musical answer to decide if the two are alike or different, exactly the same or different, or to decide which is a more musical performance. Total testing time is 1 hour and 50 minutes. Each of the three main divisions of the battery may be administered during the time limits of a regular class period. For purposes of the Project only Tonal Imagery

(melody and Harmony subtests) was administered to participants both as a pretest in 1973 and again as a posttest in 1975. Construction, scoring, reliability, validity and other related data may be found in the accompanying manual of the measure.

4. Experimental Treatment

In the first evaluation report the general principles of the Program were described and details of the major steps of execution within Language Arts, Science/Mathematics, and Music groupings of participants were outlined (Pp. 15-24).

The second evaluation report will begin by recapitulating the description of the general principles of the Program and go on to describe some of the major refinements that were effected following the recommendations of the first evaluation report (Pp. 63-66) and the second Summer Institute together with a summary of the major activities based on these principles that were carried out within the same three groupings of participants in the second year of the Project. As a whole, the second year Program served as the independent variable in this experiment.

The Program Model of the first year was developed for Talented and Gifted students between the ages of 10 and 12 years during a Summer Institute conducted in July, 1973 at the PACE Center by the Project Consultant with the assistance of the Director, the three Coordinators, and a group of Teachers who had been specially selected for the purpose, full details of which can be found in a Project unpublished report entitled "TAG With a Star" (1973). The superstructure of the Model was built upon the foundation of up-to-date conceptions of giftedness and creative potential, current practices in the nurture and guidance of the gifted with special focus given to Creative Problem-Solving and Synectics techniques (Gordon, 1961; Osborn, 1963; Parnes, 1967ab), Research Techniques for children's use (Torrance & Myers, 1962), Creative Thinking Strategies (Khatena, 1970, 1974a), and Creative Approaches to Learning incorporated as for example in the work of Renzulli (1973), and Williams (1971).

The Program began with a five week orientation for the experimental students to familiarize them with their new role and function in the

Project that would demand they do much of the planning and organizing relative to this development. Experiences were provided for them to become aware of the need to learn in creative ways, to acquire research skills, to learn to use creative thinking and problem-solving strategies, to know more about how to use the library and how to operate and care for audio-visual equipment and materials that were available at the Center, and to learn the need for making accurate decisions about themselves and their work.

On the basis of the findings and recommendations of the first evaluation report the refinements made to the Program at the Summer Institute 1974 were implemented according to Coordinators' reports as follows

(1) Special attention and emphasis was given by the Coordinators to the development of the four creative thinking abilities, namely, fluency, flexibility, originality and elaboration. This was accomplished through the hour on each Thursday devoted to problem-solving and through such sessions as debate, public speaking, art of various types, music and topology.

(2) In the basic skills session of each Thursday meeting activities encouraging the development of creative thinking abilities which included exercise in restructuring and synthesis were organized.

(3) More substantial blocks of time were provided for program participants: the experimental group came once every other week for a full day session so that they could take part in activities relative to (1) and (2) above.

(4) Cooperative efforts in terms of group work was done relative to preparation and participation in the Arts and Science Festival and through sessions such as debate, chess, bicycle fair, speed arithmetic and chemistry.

(5) Students received reinforcement for their efforts through demonstrations, and performance during the Arts and Science Festival, through a trip to the state public speaking tournament, and by means of certificates. They were also allowed to keep things that they had made and were awarded small prizes or trophies in some sessions for their productions.

(6) Developing creative attitudes to learning was accomplished through use of films such as "Why Man Creates," through the problem-solving sessions, and through the special and individual projects on Thursdays.

(7) More effective use of the library levelled at developing skilful use of the facilities and resources accomplished through research and writing sessions on Saturdays and Thursdays, through a trip to ERIC, through trips to Marshall University Library by students working on special projects, and through the use of the PACE Center library.

(8) Students were made aware of the different sources of knowledge and given experiences in the use of the scientific method of inquiry through the different individual projects on Thursdays, the large group session of Thrusday meetings, the research and writing sessions, and the mini sessions on Saturday.

(9) Students were encouraged to complete their projects with something to show for their efforts: this was accomplished through the Arts and Science Festival, the 8 mm and videotape productions, the debate for the USOE meeting at the Gateway, and other projects that had definite products as their outcomes.

(10) Children were taken to various places of interest in connection with their projects. Some of these places were the state public speaking contest, Ritter Park, Huntinton Galleries, Blue Barn Boarding Kennel,

Chess Tournament, Cabell County Courthouse, ERIC, a Theater in West Virginia, videotaping at WSAZ, and the biology, chemistry, physics, electronics, and computer facilities of Marshall.

(11) Sixty-three mini-sessions were offered in the three terms of four Saturdays each.

(12) Leadership experiences were provided through sessions on sensitivity and leadership, drama productions, creative dramatics, debating teams, movie making, and lab groups.

(13) Lists were prepared of all sessions attended by a child and of his total number of hours devoted to TAG activities.

(14) Student appraisal of two activities were encouraged: children attended a concert, a play, and taping of Theater-W.Va., and were requested to write suggestions for future experiences in this area.

Other recommendations attended to in order to increase the effectiveness of the Program as independent variable were:

(1) the hiring of a part-time coordinator for testing, dissemination and in-service training of teachers;

(2) the hiring of resource people when needed;

(3) speaking to the school teachers whose students were participating in the project at county meetings and communicating with them by a newsletter and Open House, through reports to the principals, in-service, and by filling requests from teachers for materials.

(4) giving awards for achievement and production, as for instance special recognition was given the privilege of being selected to take part in a debate held for the USOE meeting, and for work in mini-sessions.

5. Statistics

Raw scores for all measures were transformed to standard scores: stanines were used for the Torrance Tests of Creative Thinking, Thinking Creatively with Sounds and Words, Standard Progressive Matrices, California Test of Mental Maturity, Stanford Achievement Test, and Musical Aptitude Profile. Further, standard score means and standard deviations were calculated and the significance of differences were tested as follows with the level of significance set at .05:

(a) For the Standard Progressive Matrices, California Test of Mental Maturity, Standard Achievement Test, and Musical Aptitude Profile 2 x 3 factorial analyses of covariance were used (Bruning & Kinz, 1968) to control for the effects of pretesting upon criterion posttest scores so that main effects of training, and age, and interaction effects of training x age relative to each of the measured dimensions of mental functioning could be determined.

(b) For the Torrance Test of Creative Thinking, and Thinking Creatively with Sounds and Words, a 3-Factor Mixed Design--Repeated Measures on One Factor analysis of variance (Bruning & Kinz, 1968) was used to control the effects of three repetitions of measurement so that main effects of training, and age, and interaction effects of training x age relative to each of the creative abilities measured could be determined.

RESULTS AND DISCUSSION

A. Repeated test data obtained on the Torrance Test of Creative Thinking Figural Forms and Thinking Creatively with Sounds and Words from students of the three age groups to be referred to as Group 1 Group 2 and Group 3 (aged 10, 11, and 12 at the first administration of the measures respectively) in the experimental and control groups were analysed and mean stanines and standard deviations for figural fluency, flexibility, originality and elaboration, and verbal originality were computed and presented in Table 1. Further, a 3-Factor Mixed Design--Repeated Measures on One Factor Analysis of Variance (Bruning & Kinz, 1968) was used to test the significance of main effects of training, age and interaction effects of training x age while controlling for the effects of repeated testing relative to the creative thinking abilities described (Table 2).

1. Torrance Test of Creative Thinking

(a) Figural Fluency: Mean stanines for fluency relative to Group 1 on all three administrations of the measure show experimentals to be superior to controls. The condition is reversed for Groups 2 and 3 whereby controls obtained higher mean stanines than experimentals except on the third testing. Some small fluctuations in the variance is present. An analysis of variance of these differences showed no significant main or interaction effects due to training age and testing; however, the difference in training at the three age levels must have accounted for some training x age interaction effects though this was not found to be significant.

(b) Figural Flexibility: A near similar pattern in mean stanines on figural flexibility with Group 1 experimentals achieving somewhat higher than controls, and Groups 2 and 3 controls achieving somewhat

higher than Group 2 and Group 3 experimentals on all three test administrations can be seen. There was little difference in the variance among the three age groups on all three test administrations. An analysis of variance of this data showed no significant main effects, however training x age interactions were found to be highly significant ($F = 15.84$, $df = 2/111$, $p < .01$) giving support to the differential responsiveness to the training by the several age groups.

(c) Figural Elaboration: Fluctuations in stanine means on elaboration were also present with Group 1 experimentals obtaining higher mean stanines than Group 1 controls on all three tests, whereas the reverse was seen for Group 2 experimentals and controls. However, while Group 3 experimentals showed no difference in mean stanines on the first testing when compared to Group 3 controls, they did show gains over controls in the second and third testing. Little difference was found in the variance. An analysis of variance of this data showed no significant main or interaction effects.

(d) Figural Originality: A near similar pattern was also found for figural originality with Group 1 experimentals having higher mean stanines than Group 1 controls. Some small reversal effects showed Group 2 experimentals and controls varying in superiority on the first and second testings as opposed to the third testing with little fluctuation in the variance. An analysis of variance of the data again showed significant main and interaction effects.

2. Thinking Creatively with Sounds and Words

(a) Verbal Originality (Sounds and Images): Fluctuations in mean stanines for verbal originality as measured by Sounds and Images were present with little difference in the variance. An analysis of variance of the data showed no significant main and interaction effects.

(b) Verbal Originality (Onomatopoeia and Images): Mean stanines for verbal originality as measured by Onomatopoeia and Images showed Group 1 experimentals having higher mean stanines than Group 1 controls on all three testings; Group 2 experimentals having somewhat higher mean stanines than Group 2 controls on the first and third testings; and Group 3 experimentals having higher mean stanines on the second an third testings. Little change in the variance was seen. An analysis of variance of the data showed that main effects of training (F 4.08, df = 1/111, $p < .05$) are significant with no other significant main and interaction effects.

Generally training seemed to show significant effects in favor of the experimentals in verbal originality as measured by Onomatopoeia and Images; that differential responsiveness to the training by the three experimental age groups accounted consistently for training x age interactions in all creative thinking abilities, but only significant in flexibility as measured by the Figural Form of the Torrance Test of Creative Thinking.

Retest data on the Standard Progressive Matrices, the California Test of Mental Maturity, and the Stanford Achievement Test for the three age groups of experimentals and controls were obtained and reported in the following section of the evaluation report.

B. 1. Standard Progressive Matrices

Pretest and posttest stanine means and standard deviations on the Standard Progressive Matrices were computed and presented in Table 3. Nonverbal intelligence in the form of mean stanines showed small fluctuations on the pretest and posttest for Groups 1 and 2 experimentals, and Group 1 Group 2 and Group3 controls, with no change for Group 3 experimentals on the posttest. The stanines of all three age groups when combined and averaged showed neglible mean stanine differences on

both pretest and posttest for experimentals and controls (Pretest: $\underset{\text{comb.E}}{M} = 4.86$, $\underset{\text{comb.C}}{M} = 5.00$; Posttest: $\underset{\text{comb.E}}{M} = 4.99$, $\underset{\text{comb.C}}{M} + 4.92$). The variance for all six groups showed little fluctuations.

A 2 x 3 factorial analysis of covariance was done to remove the covariate effect of pretesting and to test the significance of main effects of training, age and interaction effects of training x age relative to nonverbal reasoning. No significant main effects were found either training or age seemed to be present ($F = 1.48$, 2/121) but were not found to be significant (Table 4).

2. California Test of Mental Maturity (Short Form)

The pretest and posttest data obtained on the Short Form of the California Test of Mental Maturity were analysed and mean stanines and standard deviations for the three age groups of experimentals and controls were found and presented in Table 3. Mean stanines computed showed Groups 1 and 2 experimentals as having somewhat higher stanines than Groups 1 and 2 controls on both the pretest and posttest, whereas Group 3 controls had higher stanines than Group 3 experimentals of the same age on both the pretest and posttest. When mean stanines of all three age groups were combined and averaged the differences between the stanines on both pretest and posttest for experimentals and controls seemed negligible (Pretest: $\underset{\text{E comb.}}{M} = 5.03$, $\underset{\text{C comb.}}{M} = 4.85$; Posttest: $\underset{\text{E comb.}}{M} = 4.95$, $\underset{\text{C comb.}}{M} = 5.00$). The variance for all six groups showed little fluctuation.

A 2 x 3 factorial analysis of covariance was done to remove the covariate effect of pretesting and to test the significance of main effects of training, age, and interaction effects of training x age relative to intelligence. No significant main effects were found either for training or age. However, interaction effects for training and age seemed to be present ($F = 1.76$, 2/118) but were not found to be significant.

3. Stanford Achievement Test

Mean stanines and standard deviations for all groups of experimentals and controls on the Stanford Achievement Test in the combined areas of Language Arts and Social Studies on the one hand, mathematics and science on the other, and on the Total Scale were computed and presented in Table 3. In the areas of Language Arts and Social Studies, and Mathematics -Science, and on the total scale fluctuations in mean stanines were present generally in favor of experimentals on the pretest and posttest. The variance showed only small fluctuations.

A 2 x 3 factorial analysis of covariance was done to remove the covariate effects of pretesting and to test the significance of main effects of training, age, and interactions of training x age relating to achievement in Language Arts and Social Studies, and Mathematics and Science, and on the Total Scale. There were no significant main effects for training or age. However, significant interaction effects were found in Language Arts-Social Studies for training x age ($F = 6.04$, $df = 2/116$, $p < .01$), but not in Mathematics and Science combined.

Scores of students on Language Arts-Social Studies and Mathematics-Science as measured by the Stanford Achievement Test, and Musical Aptitude Profile were also analysed according to the three subject interest groupings (Table 5) Mean stanines in the area of Language Arts-Social Studies of the Language Arts Group on the pre and posttest tests favored experimentals. However, a simple analysis of covariance to control for the effects of pretesting found no significant main effects of training. A similar analysis was done for the Mathematics-Science groups relative to their scores on Mathematics and Science, and although some improvement in mean stanines favored the experimental group, an analysis of covariance done found no significant training effects ($F = 2.81$, $df = 1/38$, ns.).

The analysis of Musical Aptitude Profile scores for music students found little difference in mean stanines for experimentals both on the pretest and posttest. A simple analysis of covariance done showed no significant training effects.

Generally, the evidence showed that the training program had not produced significant changes in the development of verbal and nonverbal intelligence as measured by the Standard Progressive Matrices and the Short Form of the California Test of Mental Maturity. The expectation that the achievement level of experimentals would be raised by the program was not borne out by the evidence. Differential responsiveness to the training by the three age groups especially in favor of the youngest group of experimentals might have caused the significant interaction effects of training x age in the area of Language Arts-Social Studies.

In summary, the evidence obtained by the several analyses of data as related to Creative Thinking Abilities, Intelligence and Achievement point to the fact that the training program had not had the expected effect of accelerating the development of these several abilities. In Creative Thinking Abilities the only significant main effects of training were found for verbal originality as measured by Onomatopoeia and Images; however, although there were interaction effects of training x age on all Creative Thinking Abilities only on figural flexibility as measured by the Torrance Test of Creative Thinking was this found to be significant. No significant main or interaction effects were found on both the verbal and nonverbal intelligence as measured by the Standard Progressive Matrices and Short Form of the California Test of Mental Maturity. On the Stanford Achievement Test only significant interaction effects of training x age were found relative to Language Arts.

TABLE 1

REPEATED TEST MEANS AND STANDARD DEVIATIONS OF STANDARD SCORES ON TTCT AND TCSW BY EXPERIM

Measures		Experimentals									Controls				
		Group 1 (N=21)			Group 2 (N=21)			Group 3 (N=21)			Group 1 (N=20)			Group 2	
		T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	
TTCT (Figural):	N	21			24			21			20			21	
Fluency	M	5.33	5.24	5.14	4.54	4.54	4.58	4.81	4.86	5.10	4.65	4.95	4.70	5.24	5
	SD	1.43	1.77	1.94	1.77	2.13	1.82	1.94	1.96	2.12	2.28	1.96	1.45	1.96	1
Flexibility	M	5.43	5.05	5.43	4.38	4.79	4.67	4.67	4.86	5.05	4.55	4.90	4.90	5.43	5
	SD	1.29	1.75	1.99	1.76	2.34	1.86	2.11	1.96	2.11	1.99	1.92	1.77	2.11	1
Elaboration	M	5.62	5.48	5.10	4.71	4.83	4.79	5.00	5.29	5.00	4.45	4.55	4.90	5.25	5
	SD	1.63	1.78	1.61	2.26	2.04	2.04	1.97	1.98	2.14	1.90	1.82	2.15	1.62	1
Originality	M	5.43	5.19	5.43	4.88	4.75	5.00	4.95	4.76	5.19	4.60	4.85	4.60	5.10	5
	SD	1.54	1.75	2.09	1.51	1.86	1.66	1.96	1.73	1.94	1.98	1.98	1.57	2.32	2
TCSW (Verbal):	N	20			23			22			20			21	
SI--Originality	M	4.85	5.50	5.30	4.83	4.96	4.74	4.86	5.09	5.00	5.10	4.55	4.50	5.33	5
	SD	1.46	1.64	2.00	2.06	2.12	1.84	1.81	2.00	2.39	2.02	2.14	1.93	2.13	1
OI--Originality	M	5.40	5.85	5.55	5.04	5.00	5.22	4.86	5.41	5.09	4.70	4.25	4.55	5.00	5
	SD	1.88	1.95	1.99	1.52	2.15	2.07	1.86	1.79	1.93	1.84	1.62	1.57	2.39	1

TABLE 1

AND STANDARD DEVIATIONS OF STANDARD SCORES ON TTCT AND TCSW BY EXPERIMENTALS AND CONTROLS

Experimentals									Controls								
oup 1 (N=21)			Group 2 (N=21)			Group 3 (N=21)			Group 1 (N=20)			Group 2 (N=21)			Group 3 (N=11)		
T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3	T1	T2	T3
			24			21			20			21			12		
.33	5.24	5.14	4.54	4.54	4.58	4.81	4.86	5.10	4.65	4.95	4.70	5.24	5.48	5.38	5.45	4.91	5.00
.43	1.77	1.94	1.77	2.13	1.82	1.94	1.96	2.12	2.28	1.96	1.45	1.96	1.69	[illegible]01	1.57	2.21	1.48
.43	5.05	5.43	4.38	4.79	4.68	4.67	4.86	5.05	4.55	4.90	4.90	5.43	5.38	5.38	5.36	5.00	5.00
.29	1.75	1.99	1.76	2.34	1.86	2.11	1.96	2.11	1.99	1.92	1.77	2.11	1.72	1.96	1.57	1.90	1.73
.62	5.48	5.10	4.71	4.83	4.79	5.00	5.29	5.00	4.45	4.55	4.90	5.25	5.19	5.33	5.00	4.55	4.45
.63	1.78	1.61	2.26	2.04	2.04	1.97	1.98	2.14	1.90	1.82	2.15	1.62	1.91	1.85	1.84	1.86	1.29
.43	5.19	5.43	4.88	4.75	5.00	4.95	4.76	5.19	4.60	4.85	4.60	5.10	5.24	4.95	5.18	5.46	4.73
.54	1.75	2.09	1.51	1.86	1.66	1.96	1.73	1.94	1.98	1.98	1.57	2.32	2.02	2.33	1.78	2.11	1.62
			23			22			20			21			11		
.85	5.50	5.30	4.83	4.96	4.74	4.86	5.09	5.00	5.10	4.55	4.50	5.33	5.19	5.52	4.82	4.82	5.18
.46	1.64	2.00	2.06	2.12	1.84	1.81	2.00	2.39	2.02	2.14	1.93	2.13	1.83	2.20	1.66	1.99	0.87
.40	5.85	5.55	5.04	5.00	5.22	4.86	5.41	5.09	4.70	4.25	4.55	5.00	5.05	4.91	5.46	4.27	4.82
.88	1.95	1.99	1.52	2.15	2.07	1.86	1.79	1.93	1.84	1.62	1.57	2.39	1.80	1.67	1.97	1.56	1.60

TABLE 2

F-RATIOS AS INDICES OF THE SIGNIFICANCE OF MEAN STANINE DIFFERENCES OF EXPERIMENTAL AND CONTROL GROUPS ON TTCT AND TCSW

Source of Variance	F-ratios							
	TTCT					TCSW		
	F	F1	O	E	df	SI-O	OI-O	df
Training	-	3.80	-	-	1/112	-	4.08*	1/111
Age	-	-	-	-	-	-	-	-
Training x Age	2.37	15.84**	1.17	2.05	2/112	1.46	1.76	2/111
Testing	-	-	-	-	-	-	-	-
Testing x Training	-	-	-	-	-	-	1.36	2/222
Testing x Age	-	-	-	-	-	-	-	-
Testing x Training x Age	-	-	-	2.32	4/224			

*$p < .05$

**$p < .01$

TABLE 3

PRETEST AND POSTTEST MEANS AND STANDARD DEVIATIONS OF STANINES ON CPM CTMM AND SAT BY EXPERIM

Measures		Experimentals						Controls				
		Group 1		Group 2		Group 3		Group 1		Group 2		G
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	P
Standard Progressive Matrices	N	24		24		22		20		24		14
	M	5.08	5.46	4.46	4.50	5.00	5.00	4.85	4.50	5.46	5.25	4
	SD	2.00	1.93	1.89	1.91	1.88	1.77	1.98	2.06	2.02	2.01	2
California Test of Mental Maturity (Short Form)	N	22		23		22		20		24		14
	M	5.41	5.60	5.04	4.70	4.64	4.55	4.70	4.50	4.71	5.00	5
	SD	1.79	2.09	1.99	2.22	1.73	1.79	2.45	2.03	2.01	1.72	1
Stanford Achievement Test: Language Arts & Social Studies	N	23		22		21		19		24		14
	M	5.04	5.65	5.50	5.09	5.33	5.14	4.95	4.26	4.33	5.13	4
	SD	1.89	1.77	1.92	2.04	1.88	1.77	2.17	2.13	1.86	1.75	2
Mathematics & Science	N	23		22		21		19		24		14
	M	5.13	5.30	5.30	5.13	5.14	5.29	4.95	4.63	4.58	5.08	4
	SD	1.82	1.87	1.23	1.96	1.93	2.24	2.17	2.24	2.38	1.91	1
Total Scale	N	23		22		21		19		24		14
	M	5.09	5.48	5.40	5.11	5.24	5.21	4.95	4.45	4.45	5.10	4
	SD	1.83	1.81	1.60	1.28	1.88	1.86	2.14	2.16	2.11	1.81	1

TABLE 3

ANS AND STANDARD DEVIATIONS OF STANINES ON CPM CTMM AND SAT BY EXPERIMENTALS AND CONTROLS

		Experimentals						Controls					
		Group 1		Group 2		Group 3		Group 1		Group 2		Group 3	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
trices	N	24		24		22		20		24		14	
	M	5.08	5.46	4.46	4.50	5.00	5.00	4.85	4.50	5.46	5.25	4.71	5.00
	SD	2.00	1.93	1.89	1.91	1.88	1.77	1.98	2.06	2.02	2.01	2.23	2.04
al	N	22		23		22		20		24		14	
)	M	5.41	5.60	5.04	4.70	4.64	4.55	4.70	4.50	4.71	5.00	5.64	5.50
	SD	1.79	2.09	1.99	2.22	1.73	1.79	2.45	2.03	2.01	1.72	1.98	1.79
st:													
ial	N	23		22		21		19		24		14	
	M	5.04	5.65	5.50	5.09	5.33	5.14	4.95	4.26	4.33	5.13	4.50	4.79
	SD	1.89	1.77	1.92	2.04	1.88	1.77	2.17	2.13	1.86	1.75	2.02	2.39
e	N	23		22		21		19		24		14	
	M	5.13	5.30	5.30	5.13	5.14	5.29	4.95	4.63	4.58	5.08	4.79	4.79
	SD	1.82	1.87	1.23	1.96	1.93	2.24	2.17	2.24	2.38	1.91	1.76	2.04
	N	23		22		21		19		24		14	
	M	5.09	5.48	5.40	5.11	5.24	5.21	4.95	4.45	4.45	5.10	4.64	4.79
	SD	1.83	1.81	1.60	1.28	1.88	1.86	2.14	2.16	2.11	1.81	1.87	2.18

TABLE 4

F-RATIOS DERIVED FROM ANOCOVA OF DATA ON SPM, CTMM AND SAT

Measure	Source of Variance	F	df	p
Standard Progressive Matrices	Training x Age	1.48	2/121	ns
California Test of Mental Maturity (Shorth Form)	Training x Age	1.76	2/118	ns
Stanford Achievement Test:				
Language Arts/Social Studies	Training x Age	6.04	2/116	$<.01$
Mathematics/Science	-	-	-	-
Total Scale	-	-	-	-

TABLE 5

PRETEST AND POSTTEST MEANS AND STANDARD DEVIATIONS OF STANINES ON SAT AND M

ACCORDING TO SUBJECT INTEREST GROUPS OF EXPERIMENTALS AND CONTROLS

Measures	Interest Groups	Experimentals						Controls				
		Pretest			Posttest			Pretest			Pos	
		N	M	SD	N	M	SD	N	M	SD	N	M
Stanford Achievement Test: Language Arts-Social Studies	LA	25	5.40	2.20	25	5.48	1.87	21	4.62	1.96	21	4.
Mathematics-Science	MS	21	5.67	1.56	21	5.95	1.75	20	4.85	2.35	20	4.
Music Aptitude Profile	M	21	5.57	1.91	21	5.52	1.97	17	5.24	1.03	17	5.

TABLE 5

ST AND POSTTEST MEANS AND STANDARD DEVIATIONS OF STANINES ON SAT AND MAP

ACCORDING TO SUBJECT INTEREST GROUPS OF EXPERIMENTALS AND CONTROLS

Interest Groups	Experimentals						Controls								
	Pretest			Posttest			Pretest			Posttest					
	N	M	SD	N	M	SD	N	M	SD	N	M	SD	F	df	p
Test:															
LA	25	5.40	2.20	25	5.48	1.87	21	4.62	1.96	21	4.95	1.88	-	-	-
MS	21	5.67	1.56	21	5.95	1.75	20	4.85	2.35	20	4.85	2.35	2.81	1/38	ns
M	21	5.57	1.91	21	5.52	1.97	17	5.24	1.03	17	5.35	1.58	-	-	-

Of the many variables that might have hindered the positive effects of the Program from becoming evident, the most important were differential exposure of experimentals to the Program; major changes in leadership relative to coordinator turnover; untrained resource personnel; considerable loss of experimental and control subjects; and adverse conditions affecting test administration during the period of the second evaluation of student progress.

1. Differential exposure of experimentals to the Program

The number of participation hours for each student ranged from 1 to 153 hours with $\underline{M} = 55.59$ and $SD = 45.00$. Means and standard deviations relative to hours of attendance of students in each of the three subject interest groupings were: LA: $\underline{M} = 59.41$, $SD = 42.03$; MS: $\underline{M} = 41.24$, $SD = 43.14$; Music: $\underline{M} = 61.52$, $SD = 49.85$. Although there are differences in the hours of participation among these three groups, the differences were not found to be significant. However, individual differences to Program participation must have biased the results obtained.

2. Major Changes in Consultant Leadership

Relative to the Coordinator turnover must have had adverse effects to the implementation of the Program. The Project, it must be remembered began with three Coordinators all untrained in the task of facilitating the education of the gifted and talented. Each Coordinator received training in the planning grant stage prior to the implementation of the Program and during the first year of the Program, being actively involved in three workshops working on Identification and Program models and its refinement, attending the Parnes Creative Problem Solving Workshops either in West Virginia or New York, working closely with the Consultant of the Project at Marshall University in the area of the gifted, and at tending at least one National meeting concerned with gifted and talented children.

In the second year of the Project (Fall, 1974/1975) the trained Mathematics-Science Coordinator was replaced by another without prior experiences of the Project, its intent and Program. The Project lost its Music Coordinator in the Winter of 1974/1975 and filled the second of three positons with an untrained Coordinator to manage the Music Group. The original Mathematics-Science Coordinator in the second year of the Project assumed part time duties not directly related to the Program implementation. These must be considered major disruptions introducing biases that had every chance of threatening the validity of the experiment.

3. Untrained Resource Personnel

In the main, resource personnel were untrained and not fully aware of the rationale and directions of the Program brought to the Project expertise for the most part rooted to traditional approaches of teaching children rather than facilitating the education of the gifted child according to the productive approaches described in the experimental treatment section of this report.

4. Loss of Gifted Students

Considerable loss of experimental and control subjects at various junctures of the Project must be considered as a threat to the internal validity of the study in spite of the strict control of this factor by the Design of the study. The original number of 90 experimentals and 90 controls have been reduced to 66 (73%) and 57 (63%) subjects respectively by the end of the second year of the Project.

5. Adverse Testing Conditions

Further, adverse conditions affected the administration of the measures: (a) an unexpected conflict in the test dates with school testing obligations caused so many absentees at the Project's retesting that a second schedule for retesting had to be arranged for a few weeks

after the first. Together with bad weather, lack of motivation of testees of the control group, irregular attendance at the test sessions resulting in incomplete test data: the second retesting did not effectively collect complete data for the second evaluation of the Project. These disruptive conditions must have threatened to some extent the validity of the experiment.

In addition to these five problems may be added differential and inconsistent support by school personnel relative to freeing the experimental participants for activities relative to the Program, affecting the involvement, motivation and attendance of these students must have contributed much to the bias. A survey of teacher attitudes to the Program presented in the next section of the report will clarify this position still further.

If the Program is to have a fair chance to have effect it must have the control of these extraneous events. Some of the ways that these biases may be controlled in the third year of the Project's operation will be dealt with in the section on Appraisal and Recommendations.

PART 2 - STUDENT CREATIVE SELF PERCEPTIONS EVALUATED

The first evaluation report reviewed the merits of the autobiographical instrument as a screening device for identification of gifted people (e.g. Baron, 1969; Khatena, 1969; MacKinnon, 1961; Renzulli, Hartman & Callahan, 1971; Roe, 1963; Schaefer & Anastasi, 1968; Taylor & Ellison, 1967; Torrance, 1965), and selected Something About Myself as a measure of Creative Self Perceptions (Khatena, 1971 bc, 1972, 1973a, 1974b) for use in the Project especially as a diagnostic tool for program development and refinement.

Appraisal of the creative perceptions of experimentals by parents and by themselves on the one hand and of experimentals and controls by parents on the other hand was done in the first evaluation report. The evidence showed that there were no significant mean differences in the perceptions by parents of their children on the six creative orientations and total scale, that the only significant mean difference between experimental group ordered the six orientations from highest to lowest as Intellectuality, Environmental Sensitivity, Self-Strength, Artistry and Initiative. Parents of the control group ordered the six orientations from highest to lowest as Environmental Sensitivity, Initiative, Intellectuality, Self-Strength, Individuality, Artistry and Individuality.

This evidence indicated that the creative orientations of Environmental Sensitivity and Intellectuality tend to be the greatest strengths of these gifted students while Initiative tends to be their greatest weakness, with Self-Strength, Individuality and Artistry taking moderate positions of the scale of importance for them. The recommendation was then made to include planned experiences that would strengthen in particular the lacks relative to Initiative in terms of opportunity for students to direct or produce plays or skits, to take part in lead roles in dramatic or musical productions, to produce formulas, to make things, and even to

practice the sensing of deficiencies in procedural patterns and organizations for the purpose of suggesting improvements, and other leadership roles that go beyond the screening instrument which was used. Further, it was recommended that another creative orientation could be strengthened, namely Artistry, whereby gifted students could be involved in the production of objects, models, paintings, and carvings, creative writing of stories, plays, poems and other literary pieces, which are inherent in the Projects activity areas (Language Arts and Music), and arranging for recognition of these efforts by way of exhibition and prizes.

PROCEDURES

Something About Myself (Khatena, 1970b)is a 50 item forced choice creativity checklist which is based upon the rationale that creative behavior is reflected in the personal characteristics of the individual, in the way he thinks, and in the products that emerge as a result of his creative strivings. It can be easily administered either in groups or individually. Those who take the test are instructed to read the items and respond by checking those items they perceive applicable to them with each positive response receiving 1 point and with possible scores ranging from 0 to 50 points. It generally takes between 10 to 15 minutes to complete the checklist though in some cases the time taken may be longer.

The construction, reliability, validity and other relevant data of this measure have been reported elsewhere (Khatena, 1971b,1972). Further, the measure as has been described earlier in this report provides six creative orientations namely, Environmental Sensitivity, Initiative, Self-Strength, Intellectuality, Individuality, and Artistry determined by factor analysis (Bledsoe & Khatena, 1973).

Descriptive details of each of these factor orientations are as follows:

If a person is Environmentally Sensitive he is one who is open to the ideas of others, relates ideas to what can be seen touched or heard, is interested in the beautiful and humorous aspects of experiences, and has sensitivity to meaningful relations.

If a person is high on Initiative he is one who directs, produces and/or plays lead roles in dramatic and musical productions, produces new formulas or products, and brings about changes in procedures or organization.

If a person shows high on Intellectuality he is one who has intellectual curiosity, who enjoys challenging tasks, who has imagination, has preference for adventure over routine, who likes reconstructing things and ideas to form something different, and who dislikes doing things in a prescribed and routine way.

If a person has Individuality he is one who prefers to work alone rather than in a group, sees himself as a self-starter, is eccentric, is critical of others, thinks for himself, and works for long periods without getting tired.

If a person has Artistry he is one who produces objects, models, paintings and carvings, who composes music, who has been awarded prizes or has had his works exhibited, and who has produced stories, plays, poems and other literary pieces.

In this second evaluation of creative self perceptions, students of the Project were administered Something About Myself and responded to the measure themselves. Raw scores obtained were then transformed to standard scores with Mean = 10 and Standard Deviation = 2 by reference to the Conversion Tables of the Norms Technical Manual based on a norm population that included various related groups of West Virginians

(Khatena, 1971d). Mean standard scores and standard deviations were computed relative to the six factor orientations and total scale for all three age groups of experimentals and controls and presented in Table 6.

A 2 x 3 factorial analysis of variance design was used to test the significance of the main effects of training, age, and interaction effects of training x age upon creative self perceptions. However, the only main effects that were found to be significant were those related to training relative to Self-Strength ($F = 4.60$, $df = 1/112$, $p < .05$) and Individuality ($F = 9.94$, $df = 1/112$, $p < .01$) both in favor of experimentals. There were no significant main effects for age or interaction effects for training x age. It is interesting to note that the experimentals have higher mean standard scores than controls on Initiative though the differences were not found to be significant ($F = 2.47$, $df = 1/112$, ns). Differences on Intellectuality seem to be more a function of age though these too were not found to be significant ($F = 2.70$, $df = 2/112$, ns). Evidence of these values can be found in Table 7.

A second analysis of the creative self perceptions of experimentals obtained in 1974 and 1975 administrations of Something About Myself showed improvement in mean standard scores upon five of the six creative orientations namely, Environmental Sensitivity, Initiative, Self-Strength, Intellectuality and Individuality, and the total scale with a decline in mean standard scores on Artistry. Evidence of this is presented in Table 8. The t-test of related sameples was used to test the significance of these differences (Walker & Lev, 1953), and all improvements and the decline were found to be highly significant ($p < .01$).

The evidence of the first analysis suggests that the refined program of the second year of the Project seemed to have exerted significant influence on the creative self perceptions of experimental participants in the areas of Self-Strength, and Individuality; and that although no significant differences were found on Initiative, experimentals do show some increase over the controls. The second analysis while not comparing experimentals and controls indicates significant improvement for experimentals in five of the six orientations and on the total scale.

These findings have implications for the further refinements of the Program for the third year of the Project, especially in the areas of Initiative and Artistry.

Some careful diagnostic work should be included relative to each individual to discover in which of the aspects of Initiative and Artistry the student shows weakness and to remedy these by planning some special activities to strengthen them.

A careful record relative to the progress shown in these two areas needs to be kept. It is suggested that subcomponents of these two orientations be listed on a sheet of paper with space provided for the making of notes relative to the performance and progress of each child.

TABLE 6

STANDARD SCORE MEANS AND STANDARD DEVIATIONS OF CREATIVE SELF PERCEPTIONS OF EXPERIMEN
AND CONTROLS ON SOMETHING ABOUT MYSELF

Something About Myself	Experimentals						Control			
	Group 1 (N=23)		Group 2 (N=24)		Group 3 (N=22)		Group 1 (N=17)		Group 2 (N=20)	
	M	SD	M	SD	M	SD	M	SD	M	SD
Environmental Sensitivity	10.52	2.27	10.79	1.38	10.45	1.47	10.41	1.66	10.80	1.
Initiative	10.83	4.25	10.58	3.	11.00	2.00	10.41	4.60	9.85	4.
Self-Strength	11.78	1.28	11.46	1.79	11.73	1.08	10.53	2.85	11.30	1.
Intellectuality	11.70	1.52	10.75	1.26	10.91	1.27	11.06	1.58	10.80	1.
Individuality	11.35	1.72	10.75	1.82	10.68	1.89	9.59	1.66	9.75	2.
Artistry	11.52	2.09	11.54	1.61	10.32	3.01	10.65	3.33	11.20	1.
Creative Index (Total Scale)	11.74	2.07	11.00	1.44	10.86	1.46	10.76	1.44	10.85	1.

TABLE 6

MEANS AND STANDARD DEVIATIONS OF CREATIVE SELF PERCEPTIONS OF EXPERIMENTALS AND CONTROLS ON SOMETHING ABOUT MYSELF

	Experimentals						Controls					
	Group 1 (N=23)		Group 2 (N=24)		Group 3 (N=22)		Group 1 (N=17)		Group 2 (N=20)		Group 3 (N=12)	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
ty	10.52	2.27	10.79	1.38	10.45	1.47	10.41	1.66	10.80	1.61	10.67	1.78
	10.83	4.25	10.58	3.74	11.00	2.00	10.41	4.60	9.85	4.59	7.92	6.13
	11.78	1.28	11.46	1.79	11.73	1.08	10.53	2.85	11.30	1.17	11.08	1.51
	11.70	1.52	10.75	1.26	10.91	1.27	11.06	1.58	10.80	1.58	10.83	1.19
	11.35	1.72	10.75	1.82	10.68	1.89	9.59	1.66	9.75	2.07	10.25	2.26
	11.52	2.09	11.54	1.61	10.32	3.01	10.65	3.33	11.20	1.82	11.58	2.02
Scale)	11.74	2.07	11.00	1.44	10.86	1.46	10.76	1.44	10.85	1.46	10.83	1.70

TABLE 8

STANDARD SCORE MEANS AND STANDARD DEVIATIONS OF CREATIVE SELF PERCEPTIONS OF EXPERIMENTALS IN 1974 AND 1975

Something About Myself	M	SD	M	SD	t (df=52)	p
	Experimentals (N=53)					
Environmental Sensitivity	9.79	2.05	10.49	1.78	7.11	<.01
Initiative	9.98	4.66	10.83	3.37	6.75	<.01
Self-Strength	11.55	1.28	11.68	1.46	7.88	<.01
Intellectuality	11.02	1.45	11.25	1.39	7.36	<.01
Individuality	10.57	1.75	11.06	1.91	8.00	<.01
Artistry	11.17	1.87	10.98	2.45	6.36	<.01
Creative Index (Total Scale)	11.00	1.84	11.15	1.65	7.76	<.01

TABLE 7

F-RATIOS AS INDICES OF THE SIGNIFICANCE OF MEAN STANDARD SCORE DIFFERENCES OF EXPERIMENTAL AND CONTROL GROUPS ON SOMETHING ABOUT MYSELF

Source of Variance	ES	I	SS	IN	ID	A	Total Scale	df
Training	-	2.47	4.60*	-	9.94**	-	1.64	1/112
Age	-	-	-	2.70	-	-	-	2/112
Training x Age	-	1.10	-	-	1.02	1.87	-	2/112

* $p < .05$ **$p < .01$

PART: OTHER SOURCES OF PROJECT EVALUATION

Additional data for the appraisal of the Project were generated by reports prepared by the Project Coordinators with the assistance of questionnaires that were given to gifted experimentals and their teachers on the one hand, and to the Coordinators on the other hand. The Director was also asked to comment on the progress of the Project as he perceived it.

EVALUATION BY GIFTED EXPERIMENTALS

Student evaluation of their activities in the Project was based on 33 returns out of 66 remaining participants in the experimental Program as follows:

1. (a) Relative to Saturday sessions attendance for this group of 33 students it was very good (28 yes/5 no). Those who did not attend offered the following reasons for non attendance: other activities were found more attractive, transportation difficulties, time spent in sports and games, bad weather, lack of time, had to have work assignments, and other prior arranged plans.

(b) Relative to Weekday sessions (Thursday), attendance for this group of 33 students it was generally good (25 yes/ 8 no) with variation in the number of sessions attended from a few to all sessions. Reasons for non attendance of Thursday sessions were in terms of not wanting to miss school because of having to make up all school work missed, too much homework had to be done, transportation difficulties, being out of town, school activities, illness, bad weather, tests administered in school at these times, greater interest in school at the time, not worth missing school for some of the classes in the Program, and school year was rough with parents and teachers fearing that the student would be unable to catch up work missed.

2. Some students had transportation difficulties.

3. A need for greater teacher cooperation was expressed by some students.

4. Appraisal was done relative to the effectiveness of Resource Personnel for their continued participation in the Project and in the main there were almost as many picked out as there were left out.

5. Appraisal of what students liked and disliked about the second year of the Project found: (a) that students appreciated best not being forced to do anything but allowed to choose what they wanted to study, activities arranged at times that did not interfere with regular schooling, the kindness shown by all connected with the Project, the availability of equipment, problem-solving, basic skills in various subject areas, and large group sessions and their scheduling; (b) that there were insufficient number of sessions or time given to each session arranged, having to make up school work, absence of Resource Personnel, music and language arts problem-solving sessions, the way school teachers complained, and time of sessions either too short or long.

6. Suggestions were made by these students concerning the Program for the third year of operation and its improvement:

(a) In the area of basic skills, students suggested they would like guidance in developing skills in: English, Drama, Acrylic Painting, Pottery, Chess, Spelling Woodwork, Latin, Spanish, Chemistry, Electricity, Reading, Debate, Music, Science, Arts, Flute, Mathematics, Research, Learning to think more positively, How to control emotions, Summer projects.

(b) On problem-solving sessions, students suggest more variety in the sessions and longer time, less of doing research about doing research, becoming more involved in sessions, make it fun and transfer to real life situations, more interesting problems involving everyone, teach more useful and advanced language arts skills, get easier mathematics, and make science sessions longer.

(c) On developing individual or small group projects students suggested: Theater Group, Drama, Creative Dramatics, Folk Remedies, Motorcycles, Terrariums, Ecology, Journalism, Creative Writing, Woodwork,

Weaving, Character Changes, Acrylic Painting, Pottery, Spanish, Gymnastics, Dancing, French, Art, UFO's, Building Radio, Sewing, Music, Debate, Public Speaking, Creative Arts, Typing, Magic, Astrology, Singing, Biology, Crafts, Medical Class, Speed Arithmetic, Field Biology, Guitar, Chemistry, Mathematics Speed Reading, Computer Programming, West Virginia, Crafts, Fishing, Aviation and Gymnastics.

(d) On improvement of the Program the suggestions were: make it more interesting; better communication between center and school should be established so that there would be no penalty in grades; go into areas of study in greater detail; more creative dramatics should be provided; have a better form of evaluation; don't have work in the morning for it is too rough to get up; have classes linked closer together; have longer terms; have overnight trips studying wildlike and natural foods; make certain this will be in the schools; less large-group sessions are preferable; more problem-solving in own area of interest; more fieldwork in classes; try to arrange for the use of the Focal computer at Marshall after the project is over; more organization so that the place will not get messed up; and have a couple more theater productions with help given.

In summary, analysis of student responses indicated that generally attendance was good (though it should be noted that the number of hours put in by each student participant varied from 1 to 153 hours in the second year of the Project -- P. 40 of this report); that some transportation difficulties were present; that evaluation of the effectiveness of Resource Personnel (though no names were given in the report) would help the Project identify those who would work in Program during the third year of the Project, and that likes and dislikes relative to strengths and weakness of various aspects of the Program as perceived by the students with suggested improvements would give some clues to further Program refinement.

EVALUATION BY SCHOOL TEACHERS

In January of 1975, a questionnaire was sent to all teachers of the experimental group of students. Teachers were asked to report on the individual student by commenting in four areas: (1) any unusual talent or difficulties in school; (2) any aspect of social development that the Project Staff should be aware of; (3) any way in which the Project Staff should better help the child; and (4) ways in which the Project Staff could serve them. Comments received were filed in the student folders as part of his or her case record. In addition, these comments were summarized as follows by Mary Glass with relevant comment:

1. In reply to unusual talents information request, many teachers spoke of their students in glowing terms -- "tremendous student," "very capable," "well-behaved," "very talented," and so on. A few mentioned specific talents in music, mathematics, or creative writing.

The most frequent responses under difficulties could be lumped under the label irresponsibility. Teachers complained that students did not keep up with classwork when absent, forgot to hand in papers, and did not make up work immediately after missing class. (These have direct reference to the Thursday sessions). Some students were referred to as lazy, not working up to capabilities, easily bored and quitters if not challenged, behavior problems, and not liking to study basic skills. A few mentioned a particular subject in which the student having difficulties. One teacher referred to his student as being too busy.

2. The social development aspect ran the gamut from being exceedingly well-adjusted both with peers and teachers to attention seekers, to shyness, to superiority complexes. Many comments were made about well-adjusted children. However, many teachers noted difficulties some of these students were having in socializing with their peers. Shyness

was mentioned frequently. Other comments were "immature," "inattentive in class," "talks too much," "doesn't work well in groups," and "worries about grades." A few teachers commented that the student was socializing more with others or seemed to be growing up.

3. When asked to comment on any way the Project could better help the child, the teachers responded that students needed help in developing better social relationships, in learning in particular subject matter areas in an enriched way, and in developing self-discipline, and a sense of responsibility. Other comments were that students need leadership experience, that they needed group experiences, that they needed to develop their creative talents, that they needed to develop in all areas not just where their interest lies, and they needed to learn neatness.

4. In response to ways in which the Project might be of service to teachers many teachers requested feedback from Project TAG that would help them: to know what their students were learning in the Program, to know of the Coordinator's assessment of the child's needs and talents,and to have students bring back something constructive they could share with others in the class. Some teachers wanted help in their subject area with advanced or enriched materials and help where they felt inadequate to meet the needs of the child. As one teacher put it -- "anything will help." Others wanted Project TAG to work on student attitudes and socialization: they felt that students should be instilled with the desire to learn and not for getting grades; they should take responsibility for making up their homework; and they should be given counseling in social adjustment. One mentioned that these students should be given an opportunity to display their talents.

Some general comments made by them were that these students were the finest they had had in years--truly outstanding; that they had other more gifted students who were not in the Project; that the students

of the Project were A students though not the most outstanding in the class or in some cases just average. There were a few things that might have caused this comment. When Project TAG started, it was totally new to the region. There was little time for building public relations before its inception, so most educators knew little about it before they received letters asking them to refer students to the Project for screening. Few referrals were received, so follow-up letters were sent and personal contact was made with many of the principals, and the deadline was extended. Finally, referrals came from 40 out of 108 principals in the region indicating that there might have been left out many gifted students because their principals did not refer them. Most of the students referred were from elementary schools; now some of them are in junior high school along with students from other feeder schools. This might explain why a teacher could make the observation that many of her gifted children were not in the Project. It must also be remembered that the students selected were divided into experimental and control groups with only experimentals participating in the Program. This might have escaped the teachers who had in the Project both gifted participating and non participating Project students.

As a result of the difficulty in obtaining referrals a study was made of the attitudes of West Virginian principals toward gifted child education (Glass, 1974). A questionnaire was sent to each principal in the region who had pupils in the 10-12 age range, as well as to randomly selected principals across the state. It was found that principals of West Virginia and the region definitely felt that the gifted child both needed and deserved extra help in school and that the needs were not currently being met in the classroom. Principals were about evenly divided on whether or not these needs should be met within the classroom or in a regional school. Those desiring a regional school were divided

about equally on whether they preferred a part-time or a full-time school. About half of the principals expressed a desire for inservice training on the gifted child for teachers, and many added comments that they were glad that some attention was now being placed on the education of the gifted child.

It was originally intended that this study would determine the reasons why 70.20% of the principals in Region II failed to refer students to Project TAG. Since the attitudes of these principals as evidenced by this study did not significantly differ from the attitudes of principals referring students and since the majority of them apparently had gifted students, the questionnaire failed to serve its original purpose. Further research would be of value to determine why these principals did not refer students. Possible reasons for the lack of referrals might include difficulties in transportation, lack of understanding of the nature of Project TAG, parental and community attitudes and pressures, and the Project's failure to motivate the principals sufficiently to respond.

During the first year Project TAG received a good deal of TV and newspaper coverage. Project Staff spoke at county meetings, and feedback from participating students let teachers and the community know about the Project. Many parents called for information on getting their children into the Project. Consequently referrals came in more quickly and from more schools in the Spring of 1974 than they had in 1973.

Another problem frequently mentioned in the teacher questionnaire was that of student absence from school. During the first year of the Project the only time for students to meet with the Staff was on Saturdays. This put a limit on how much time they could spend and took most of the student's weekends. It was decided, with the approval of the Superintendent of each county, that the students should meet together every other Thursday

for a full school day. They were to be excused from their schools and would have to make up the work they missed. Attendance for the Thursday sessions was down in comparison with the Saturday sessions which were also held. This was due to transportation difficulties and the problem of missing school. The most frequent complaints that were made are presented as follows: (1) some teachers refused to let students make up their work (some gave tests every Thursday which could not be made up); (2) some teachers refused to give the students their assignments because they did not have the time; (3) some students were afraid to miss school for fear of having their grades lowered; (4) some students could not make up their work without teacher assistance, irritating both teacher and student (this was particularly true in mathematics); (5) some students did not make up their work promptly, and some did not make it up at all; and (6) a few teachers complained that students used the Project as an excuse for not doing school work,or that student thought constantly revolved around the Project. Most teachers, however, highly praised the positive effects of the Project on their students.

COORDINATORS' EVALUATION

The Coordinators were also asked for information regarding several aspects of the Project and supplied this in response to a questionnaire the details of which have been summarized with the help of Mary Glass as follows:

1. Program Development and Execution

During the first year of the Project, TAG students (10-12 years of age) worked with Coordinators and Resource Personnel in the interest areas of their choice. In these groups, independent study and creative problem-solving skills were emphasized, and great efforts were made to work with each student in whatever way and on whatever topics he desired. However, it became evident with the influx of 150 more students during

Phase III that with the current staff and funding, independent study could not be carried out to the extent it had been in Phase II of the Project. It was decided to hold a two week Summer Workshop for TAG students to test the feasibility of using mini-course sessions as a part of the TAG Program. Among the courses offered in the July, 1974 Workshop were batik, speed reading, anatomy, guitar, debating, electronics, ecology, creative dramatics, computers, music composition, gymnastics, and chess. Students took an active part in the Workshop, and upon its completion, expressed a unanimous desire for the continuation of mini-courses.

A two week Summer Institute for teachers was held during July 29 to August 9, 1974, in which participants learned about the characteristics and needs of the gifted child as well as teaching strategies that could be employed to facilitate the education of the gifted. They were informed of the aims and objectives of Project TAG and were briefed on the current status of the Project. Through the use of creative problem-solving techniques, a basic organizational plan was developed for the coming year. It was agreed that mini-course sessions should be offered on Saturdays to TAG students. Therefore, teacher participating in the Institute suggested topics and resource people for these courses, and developed outlines for courses that they would be able and willing to teach. The basic objectives of Project TAG were to be utilized in the content of these course, i.e., the development of creative thinking, leadership, and independent study skills. Those teachers participating in the Institute were to provide a nucleus of trained people willing to assist in the execution of this program.

It was also decided that the basic experimental group (now aged 11-13 years) should be released from school one school day every other week for instruction at the PACE Center. On these days students could

devote some time to the development of basic skills within their original area of interest. Large group activities and problem-solving sessions would also be provided, and two hours would be devoted to independent projects. This action was approved by the Board of Directors which is comprised of the Superintendents of the counties involved in the Project.

In order for students to be eligible to attend the Thursday sessions (the one school day every other week chosen for the purpose), they must also avail themselves of the Saturday workshops. Three terms of workshops with each term comprising of four Saturdays were to be held throughout the year. Students could elect to do from one to six courses per term. A wide range of high interest level classes was developed for these sessions. A few of the many formulated were chemistry, bicycle maintenance, short forms of poetry, creative movement, propaganda, sensitivity and leadership, animal behavior, everyday logic, movie making, and research writing.

In addition to these sessions, two large group activities were planned for both the experimental and control students in the Project. Scheduled were a program on Spanish Culture by Mario Simón for January and a special performance of the play "Father of the Bride", for May. An Arts and Science Festival was presented in May to give TAG students the opportunity to exhibit some of the things they had developed while working in the Project. All of these programs have taken place very successfully as scheduled.

While this was being accomplished an additional 400 students were tested for selection into the Program. By January all tests had been scored, and the selection of 150 students (aged 8-10 and 14-15 years) had been completed. This selection was determined on the basis of results of intelligence, achievement, creativity and music aptitude tests. A general orientation program was set up for these students,

followed by instruction in the use of audio-visual equipment. The 14 and 15 year olds toured the Marshall University Library and received actual experience in utilizing the library's resources. The 8-10 year olds were given a tour of the Cabell County Public Library, a problem-solving session on the card catalog and the Dewy Decimal System, a filmstrip showing on the library, and an exercise in finding materials in the library. The students were then given the opportunity to participate in a series of Saturday workshops in which they could elect to do mini-courses.

2. Progress Made by Children of the Experimental Group

Several different mini-sessions were offered during Saturday workshops in Science and Mathematics. These were based on interests expressed by the children and covered such topics as Chemistry, Computer Programming, Astronomy, Bicycle Maintenance, Statistics, Animal Behavior, Terrarium Building, and others. At the Thursday sessions, the children selected one or two topics for in-depth study. Among the topics selected were Ham Radio, Chemistry, Wildlife,Biology, Orinthology, Comparative Anatomy, and Mathematics. Several of the children pursued their Mathematics and Science interests outside the PACE Center by checking out laboratory kits and conducting their own experiments at home, and by initiating their own investigations into various topics and reporting the results of these investigations to the Coordinator.

The experimental group interested in Language Arts developed a broad range of projects which resulted in many good products. One group, while studying Broadcasting, video-taped interviews they conducted with the individual members of two groups of musicians who visited the PACE Center to demonstrate the playing of contemporary popular music. While working in Creative Dramatics, another group filmed two impromptu dramatic sketches in which each student assumed a character and performed

without a script. A third group wrote a play, developed the characters, organized a performance, and presented it to an audience of visiting parents and other TAG students. Debate projects developed such a high degree of proficiency that the students involved demonstrated their skills at the State Regional and USOE Conferences held in Huntington, West Virginia. Other Language Arts skills developed through Project activities included Public Speaking, Dramatic Reading and Pantomime.

Students who elected to study foreign languages have completed their second year of study in Spanish and French and their first year in German. Most are continuing their studies during the summer months. Journalism students have published and disseminated a magazine, they called White Lightning, which was well received by both parents and other TAG students. Another popular subject was Research and Writing. All of the students learned step-by-step how to plan their projects. They sharpened their library skills, learned how to conduct research, and how to record their findings with proper notations.

Students in the Music and Arts area developed skills in playing specific instruments such as the clarinet, flute, guitar, and piano. Some developed their abilities of improvisation, song writing, group playing, and folk dancing. Some students created works of art in the areas of ceramics, acrylic painting, and silk screen painting. Movie making was a popular course with these students, and this work was exhibited during the Science and Arts Festival.

As a result of exposure to the Program, some students have developed the habit of self-initiated study; some have increased in self-esteem and poise; some have become better adjusted socially; and some have become desirous of demonstrating their newly learned skills to other students as well as to members of their families. They have learned to work alone, to get along with others more effectively in group work, and have been very enthusiastic in their work at the Center. Many

have matured academically to the point that most of their learning has been the result of self-initiated experiences. Many parents have expressed great pleasure over the progress their children have shown since they began participation in the Program. The highlight of their work was displayed during the Spring of 1975 at the Creative Arts and Science Festival, during which students exhibited products of their work and gave demonstrations to parents and the interested public.

3. The School System and its Relation and Support

The schools have been generally most supportive of the efforts of the Project. They have assisted the Project in terms of providing referral services, released time for the testing of students and for the Thursday sessi Cooperation with the Coordinators has been generally very good with requests coming from various groups of teachers and supervisors for inservice workshops and information. School facilities and buildings have been made available to the Project when needed. Resource Personnel have been by and large school teachers and college instructors. In fact, supervisory staff of the local school boards have been most helpful in locating resource personnel with special skills for the Project. It must be noted that the facility housing Project TAG is donated rent free by the Cabell County Board of Education.

Although most teachers and principals have been cooperative, some have failed to refer students, and a few have not allowed students to make up the work they missed during the testing periods or on the Thursday sessions, although they were away from school with the permission of their superintendents. However, better communications and a better relationship with the school systems existed during the second year of the Project, probably due to the teachers and principals knowing more about the Project. This was brought about by the preschool reports at the county teacher meetings, by the addition of a Newsletter, and by

the various teachers who have served as Institute participants and resource people.

4. Parents and their Role and Support

Generally, the parents have been outstanding in their support of the Project. They had been a source of encouragement, assistance and patience: they had set aside their own activities to transport their children to the Center even in bad weather, served as chaperones to their children in the outside Center activities of the Project, and had expressed gratitude for the opportunity given to their children to participate in the Program.

However,, in a few instances, parents had not assumed these roles consistently due to their limited time, conflicting schedules, transportation difficulties, and occasionally due to a lack of interest. The Project Staff have tried to help whenever it could to alleviate matters for them.

5. Resource People and their Contribution to the Project

For the most part Resource Personnel have been very cooperative, enthusiastic and diligent. Many have helped in the Project without remuneration. The Resource Personnel represent diverse talents and expertise in many fields of knowledge and have shared their strengths generously. Without their help, it would have been impossible to carry on the work of the Project during the second year of its existence.

6. Resources by Way of Materials and Equipment

In general, the resources at the Center have been adequate for the Project. Besides the materials and equipment of the Project, the facilities of Cabell County Library, Marshall University, Huntington Galleries, the local school systems, and those of private industry and government agencies were made available to the Project and used when needed.

7. Work of Coordinator Outside the Center (with Parents, Teachers and Others).

In additon to the responsibilities at the Center, the Coordinators

reported that they had conducted workshops in their respective areas of training, served as consultants in various counties, assisted in making available to teachers materials on the teaching of gifted children, counseled parents on how they could help their children develop their abilities, gave teaching demonstrations, and disseminated information about the Project. The Coordinators were convinced that these extra-mural efforts would definitely enhance the Project's operations in this region of West Virginia.

8. Staffing

With the addition of a part-time General Coordinator and the use of numerous Resource Personnel, staffing can be considered adequate for the Project.

9. On-Going Development of Coordinators Relative to the Project (Attendance of National Meetings, Workshops, University Courses and the like)

In addition to membership in many professional organizations, the Coordinators worked to maintain their level of professional competance in a number of ways. They attended courses at Marshall University: two Coordinators (Jessie Kellam and Patrick Mills) attended for graduate credit a course entitled "Introduction to the Gifted." They reported having read extensively in the area of the Gifted and Creativity. Patrick Mills attended a Creative Problem Solving Institute at Buffalo State Universit under the direction of Sidney Parnes in July, 1975. On December 12 and 13, 1974, the Project Staff attended the Conference on the Education of Gifted Children sponsored jointly by the West Virginia Department of Education and USOE Region III held in Hun'ington. They gave a presentation on Project TAG and invited participants to tour the PACE Center. Jessie attended the West Virginia Reading Council Conference at Lakeview Inn in Morgantown, West Virignia in March, 1975 where she gave a presentation on Project TAG. Carolyn George attended various talks on the Gifted and Talented, and

prepared display materials for Washington Conference on Education for the State Department of Education. In addition, she participated in a 24-hour in service training on the gifted child before joining the Project Staff. The Project Staff is planning to attend the National Association for Gifted Children Annual Convention in Chicago, Illinois, in October 1975 where they will make a presentation. In addition, the Coordinators have reported participation in various activities during the year in their fields of specialization.

10. Recommendations

Recommendations for further improvement of the Project have been made as follows:

(a) a part-time driver for the PACE Center van to drive students to and from their community resource facilities is needed;

(b) transportation furnished to and from the PACE Center by the Boards of Education of the outlying counties is also needed;

(c) Resource Personnel need to be made more aware of the rationale, directions, and strategies of the Project so that they may become more creative in their activities with the students of the Project, and this may be accomplished by planning training sessions for them either before or at the beginning of the first meetings scheduled for the third year of the Project;

(d) Student opportunity to participate in TAG Center activities should be increased to one school day per week from the one school day every other week for participation in the Program; and

(e) More paperback books need to be purchased for the Project Library.

DIRECTOR'S EVALUATION

The Director was also invited to make observations of the Project and the salient features have been included as follows:

1. Project TAG is nearing completion of Phase III of the Project as described in the Revised Project Proposal. Activities of the Project progressed according to schedule during Phase I and II and were discussed in the 1974 "Project Talented and Gifted First Evaluation Report."

2. Phase III began in July of 1974. All activities described in the "Project Talented and Gifted Addendum" for Phase III have advanced according to schedule with one exception. Due to the cost and time involved, permission was obtained to delete the addition of 6, 7 and 17 year old students to the Project. Consequently no Program Model was prepared specifically for these students. However, many of the Program activities prepared for children of other age levels will have a carry-over benefit for these age groups.

3. Individual guidance and facilitation of educational opportunities offered by the Program to the initial 10 to 12 years age groups could not be extended with the same intensity to the fresh intake of students (8 to 10 and 15 to 16 years of age) under Phase III of the Project due to limitations in staffing and funding. Instead mini-courses were offered to these students to make up for what individual help they could not be given after a succussful try out in a two week Summer Workshop with 10 to 12 year old experimentals prior to the admission of the new students.

4. A two week Summer Institute for teachers held during July 29 to August 9, 1974 led to further development of and refinement to to the Program Model of the first year of the Project for use in the second year of the Project. Those workshop participants served as an important source of Resource Personnel for the 1974/1975 implementation of the Program.

5. Permission was sought and obtained from the Board of Directors comprising the Superintendents of Schools in the participating region to release the initial experimental groups now aged 11 to 13 years for a full school day of activities relative to the Program at the PACE Center once every two weeks.

6. Generally the Program was very successful and culminated in an Arts and Science Festival held in May 1975 during which TAG experimentals had the opportunity of exhibiting some of the products developed in the Project.

7. While this was being accomplished an additional 400 students were tested in October 1974, for selection into the Program. By January all tests had been scored, and selection of 150 students (ages 8 to 10 and 14 to 15) had been completed. This selection was determined on the basis of results on intelligence, achievement, creativity and musical aptitude tests. A general orientation program was set up for these students, followed by instruction in the use of audio-visual equipment. The 14 and 15 year olds toured the Marshall University Library and received actual experience in utilizing the library's resources. The 8 to 10 year olds were given a tour of the Cabell County Public Library; a problem-solving session on the card catalog and the Dewey System was conducted; and a filmstrip showing the library was presented and an exercise in finding material in the library was given. A set of Saturday workshops planned for these students was implemented.

8. Following these activities, evaluation reports were completed by both the experimentals and Resource Personnel involved. These reports were favorable and spoke for the excellence of the sessions. In March 1975 the original experimental and control groups were again retested using the Standard Progressive Matrices, the Short Form of the California Test of Mental Maturity, the Stanford Achievement Test, The Torrance Tests

of Creative Thinking, Thinking Creatively with Sounds and Words, the Musical Aptitude Profile, and Something About Myself. The information derived will form the major component of the second evaluation report now being prepared by Dr. Joe Khatena.

9. Preliminary discussions regarding development of a Regional School had been held with the Project Staff, the Board of Directors, Resource Personnel, and Parents of students of the Project. This was followed by the formation of a committee aimed at developing a Model for a Regional School. The committee had met twice and some major directions were given for the development of the Model during the third year of the Project.

10. Inservice training of Staff has helped provide the Project with personnel who were able generally to implement the Program. Both Jessie Kellam and Mary Fike were able to attend advanced and introductory sessions at the Creative Problem-Solving Institute in June, 1974 held at State University College, Buffalo, New York. Patrick Mills, Jessie Kellam, and Mary Glass have been involved in post graduate studies at Marshall University, and the entire Staff is keeping aware of new developments in the area of Gifted Child Education through reading and participating at Conferences. A presentation on Project TAG was given by the Staff in December, 1974 at a Regional Conference on the Gifted sponsored by the West Virginia State Department and USOE Region III. The Project Staff is planning to attend the October, 1975 meeting of the National Association for Gifted Children to be held in Chicago where they will make a presentation.

12. Communication with the Educational Community during the second year of the Project and the development of a Newsletter has increased the awareness of and cooperation with Project TAG. Radio, TV and newspaper coverage was very good and this kept the general public informed of

the progress of the Project.

13. Dr. E. Paul Torrance, Chairman of the Department of Educational Psychology and Research at the University of Georgia, Athens, Ga., was invited to speak at the Reading Teachers Annual Dinner Meeting and at the Huntington Galleries in the Spring of 1975 by the Project. He also acted as consultant to the Project, meeting with the Project Staff and discussing the directions of the Program, making suggestions concerning several problems raised by the Coordinators, and confirming the soundness of the Program offered to TAG students.

14. Dr. Joe Khatena and Mr. Lewis Wilcox have served as Chairman and Committee member respectively of a State Committee to establish standards for teachers of the gifted which were accepted in 1974; they also served on a Marshall University Committee for the development of a program for the training of facilitators of the Gifted leading to certification which was also approved by the Board of Education at its recent meeting in June, 1975.

15. One of the new developments of the Project in Phase III mentioned above was the Thursday session in which students were given released time from school once every other week. While many teachers and students have found this to be of advantage to the student participating in the Project, some teachers have obstructed students from taking full advantage of the Thursday sessions. This problem is now being handled by the Project Staff so that gifted experimentals will be able in the final year of the Project to take fuller advantage of the additional time to work in the Program.

16. Many Resource people have been utilized in the Project during Phase III. Some of them were participants in the Summer Institute. However, the majority of Resource Personnel though experienced in certain fields of knowledge have had no specific exposure or training on teaching the gifted. A pamphlet was developed to introduce these people to work with

gifted children but it is realized that some training would be advantageous to the Project. Project TAG is organizing training conferences for Resource Personnel one in late August for one group of them and another in early September for a second group.

In conclusion, it appears that the second year of Project TAG has been quite successful. Action had been taken to follow the recommendations of the On-Site Review Committee, and those made by the first evaluation report, and the Project appears stronger as a result. The Staff continues to work well together, and Dr. Khatena continues to do an excellent job as Consultant to the Project.

APPRAISAL AND RECOMMENDATIONS

1. Student and Program

The experimental findings of this report have provided evidence that the talented and gifted students of the Project who were exposed to a Program of activities rooted to creativity over a 15-month period have shown significant improvement in verbal originality as measured by Onomatopoeia and Images, a component of the Thinking Creatively with Sounds and Words battery, and significant improvement in figural flexibility relative to the 10 year old experimentals as measured by the Figural Form of the Torrance Tests of Creative Thinking when compared to the performance of those students who had not been exposed to the Program. No other significant main or interaction effects were observed relative to both measures of creative thinking abilities. In addition, no significant change was observed relative to both verbal and nonverbal intelligence as measured by the Standard Progressive Matrices or the California Test of Mental Maturity. Significant interactions of Program x Age were found generally in favor of experimentals in the area of Language Arts alone as measured by the Stanford Achievement Test. Further, the creative self perceptions of experimentals as measured by Something About Myself showed significant improvement in the areas of Self-Strength and Individuality with some favorable though not significant change in Initiative over controls. When the creative self perceptions of experimentals observed both in 1974 and 1975 were compared, it was found that they had significantly improved in five of the six orientations and the total scale, namely Environmental Sensitivity, Initiative, Self-Strength, Individuality and Intellectuality, with a decline in Artistry. This meant that experimentals on the whole did perceive themselves as more creative at the end of the second year of the Program than they did after just three months of exposure to it.

Some of the more significant variables that might have affected the experiment to give the above findings were discussed earlier in the report (P.41-42), namely, the lack of trained Resource Personnel, loss of experimental and control students, adverse testing conditions, differential and inconsistent support by school personnel.

Other evidence in terms of observational data derived from the perceptions of the Coordinators and Director indicated that generally gifted students of the Project had been well looked after, provided with educational opportunities beyond what they received in their schools, were developing in ways not easily or always screened by tests, were more independent in study, had greater self-esteem and poise, and had become better adjusted socially and worked effectively in groups as well as on their own. Problems in the main hinged upon transportation difficulties, conflicting interests and scheduled activities, and the need for more intense exposure to the Program over a longer period of time.

Teachers' perceptions of their gifted students attending the Project tended to be ambivalent. Generally they seemed inadequately aware of the Program to which their students were being exposed, and of the serious nature of the educational opportunities provided by the Project. These might account for the reluctance of some teachers to support the efforts of the Project to accelerate the development of their able students. Of particular relevance, was the lack of understanding shown by some teachers of the significance of the Project's Thursday sessions, making it difficult for their students to make up school work missed by them on legitimate release time. This had negative effect on student attendance of Thursday sessions, was anxiety producing, and detrimental to their learning both in and out of school and at the Center.

Suggestions offered by the Students, Teachers and Coordinators for the third year of the Project related to matters of Program content and method of execution; more effective communication with schools and teachers for better handling of the release time problem as it affected the absence of students from regular school work, make assignments and grading; the establishment of more adequate lines of communication between coordinators and teachers relative to information about students of the Project and follow up work in the regular classroom; help to solve some of the transportation difficulties experienced by Project participants; the call for some appropriate orientation of Resource Personnel relative to the rationale, directions and strategies of the Project for more effective implementation of the Program in the third year of the Project; and some extension to the Project's library facilities by way of purchasing paperback books.

On the basis of the experimental and observational evidence it is recommended that the following be emphasized in the third year of the Project:

1. Further emphasis needs to be given to the development of the four creative thinking abilities namely, fluency, flexibility, originality and elaboration, and to facilitate this the deliberate use of New Directions in Creativity by Dr. Joseph Renzulli (1973) is recommended especially for the first three age groups of experimentals.
2. The application of creative thinking strategies learned from Dr. Joseph Renzulli's program to students learning in the several subject areas should be encouraged.
3. A more systematic attempt to encourage experimentals to strive for higher levels of achievement in the areas of language arts, social studies, science, mathematics and music. Mini courses at introductory and higher levels might be used to accelerate learning in these subjects.

4. Incentives by way of citations of merit for achievement at high levels should be introduced. Tokens, the form of which could be designed by the Coordinators, might be given to experimentals for successful completion of one or more Mini courses to be accumulated later to be exchanged for possibly a book reward or the like.

5. Students taking Mini courses should be encouraged to show some product of learning achieved--this could vary from better writing skills in the form of a good essay on the subject or an imaginative story relative to what has been learned to some thing made or "invented" illustrative of the learning that has been completed making way for yet other learning activities.

6. It is recommended that experimentals continue to work, in groups but as teams, towards the achievement of some end product.

7. Research activities should be further encouraged both as group experiences (and this can be tied in with the recommendation No. 6) and as an individual exercise. To give meaning to this approach students' suggestion of handling real problems is endorsed. Where students experience a felt need he should be encouraged to explore this using the research strategies with which he has now become very familiar; where no need is felt, then the Coordinators and Resource Personnel should have available some good researchable problems relative to the learning experience the students have had or are having.

8. The continued effective use of the library should be encouraged.

9. Arrangements should be made for an exhibition of the products of the students at the end of the final year of the Project. Experimentals should be informed at the beginning of the third year of the Program about this. A few substantial rewards for best individual and group efforts might be offered as incentives towards this end, with criteria set up for judging excellence of products well in advance so that students could begin striving doing an excellent job right from the start.

10. More deliberate attempts to provide leadership experiences for the experimentals need to be made. It is recommended that different leadership roles be created if necessary and that each experimental have the opportunity of assuming the responsibility of at least one role.

11. Continued attention should be given to the keeping of accurate records of each experimental student in the third year of the Project.

12. The cooperation of teachers of gifted students in the Program must continue to be sought, so that they will facilitate student attendance and learning at the Thursday as well as the Saturday sessions.

13. The recommendation by the Coordinators of a weekly Thursday session for students at the Center is endorsed.

14. Alleviation of transportation difficulties suggested by the Coordinators should also be explored so that students can put in the maximum attendance time offered by the Project. On the basis of the great variability in participation hours among experimentals (P. 40), it is recommended that effective planning begin as soon as possible to ensure that each student of the three experimental groups evaluated in this report put in a minimum number of hours (possibly 50 to 60 participation hours) in the Program during the third year of the Project.

16. Every effort should be made to ensure better and more effective testing conditions for the final evaluation of students of the Project (P.42) so that measurement inconsistencies and disruptions will not invalidate the experimental findings.

17. Every effort should be made to prevent further loss of subjects relative to all groups of experimentals and controls.

2. Project Staff (Resource Personnel, Coordinators and Directors)

The observational evaluation data provided by the Coordinators and Director were generally positive, and their comments and recommendations about various components of the Project highly relevant.

The Director and Coordinators have worked very closely with Dr. Joe Khatena the Project Consultant developing and refining the Program and other relevant matters pertaining to the Project. Dr. E. Paul Torrance of the University of Georgia, Athens, Georgia, acted as the External Consultant in 1974/1975 working closely with the Project Staff, confirming the soundness of the directions taken by the Program to facilitate the education of the gifted. The Staff has also worked closely with Resource Personnel to implement various components of the Program.

As was pointed out earlier in the report (P. 40),the changes in Coordinator leadership must have had disrupting effects on the Program, but this could not have been avoided by the Director who did the best he could to recruit new Coordinators. The two new Coordinators in spite of the difficult circumstances did their best to adapt to the situation receiving strong support from the rest of the Staff.

Generally, the Project have continued to develop professionally and academically in areas relevant to the education of the gifted, and have taken active roles in local and state Conferences on the Gifted. They have extended their services to the Community, provided some inservice training for groups of teachers and acted as consultants to parents of participant children, and disseminated information about the activities of the Project in a number or effective ways including the production of a Newsletter. That they are now planning to have their Resource Personnel properly oriented for the third year of the Project, and preparing to make a presentation at the National Association for Gifted Children Annual Convention to be held in Chicago in October,

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1975 are highly commendable.

Worthy of note is the Project Director's significant involvement in the development of State Standards for the Training of Facilitators of the Gifted, and in the development of a Marshall University Proposed Program for the training of Teachers as Facilitators of the Gifted both of which have been approved by the State Board of Education in 1974 and 1975 respectively. Besides his attempts at developing a Regional School Model and the progress made to date ahead of schedule is indeed commendable.

It must be remembered that this Project is unique in the sense that from its inception its Program has not been final, rather it is one that is innovative, experimental and evolving. Hence, the Director, Coordinator and other Project Staff must be complimented for effectively meeting this challenge.

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